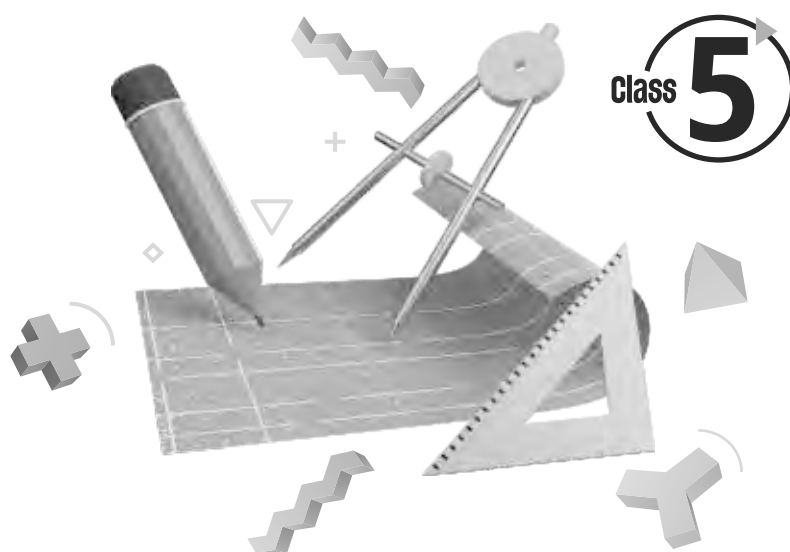




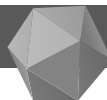
FOCUS Maths

A Complete Course in Mathematics

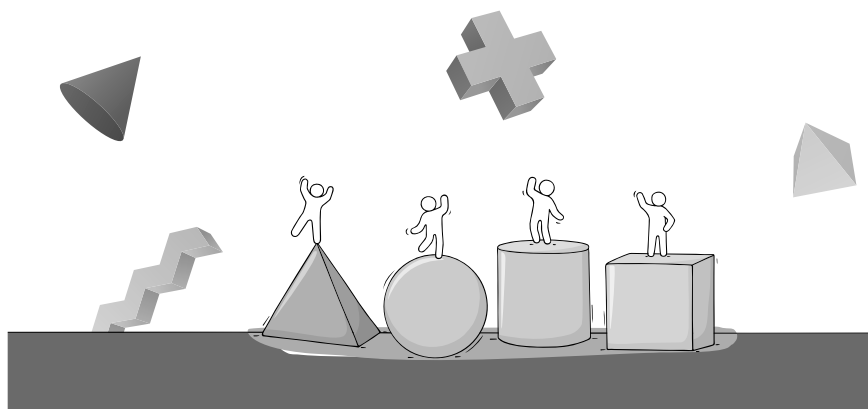
Solution Manual



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Looking Back



Exercise 1A

1. Write using Roman Numerals :

3	4	6	9	11	14	19	26
III	IV	VI	IX	XI	XIV	XIX	XXVI
29	33	37	39	40	44	49	50
XXIX	XXXIII	XXXVII	XXXIX	XL	XLIV	XLIX	L

2. Write the predecessor of :

(a) 1200

$$\begin{aligned}\text{Predecessor} &= 1200 - 1 \\ &= 1199\end{aligned}$$

(b) 21000

$$\begin{aligned}\text{Predecessor} &= 21000 - 1 \\ &= 20999\end{aligned}$$

(c) 3,09,000

$$\begin{aligned}\text{Predecessor} &= 3,09,000 - 1 \\ &= 3,08,999\end{aligned}$$

(d) 54001

$$\begin{aligned}\text{Predecessor} &= 54001 - 1 \\ &= 54000\end{aligned}$$

(e) 10020

$$\begin{aligned}\text{Predecessor} &= 10020 - 1 \\ &= 10019\end{aligned}$$

(f) 3,05,900

$$\begin{aligned}\text{Predecessor} &= 3,05,900 - 1 \\ &= 3,05,899\end{aligned}$$

(g) 17,580

$$\begin{aligned}\text{Predecessor} &= 17,580 - 1 \\ &= 17,579\end{aligned}$$

(h) 6,40,000

$$\begin{aligned}\text{Predecessor} &= 6,40,000 - 1 \\ &= 6,39,999\end{aligned}$$

3. Write the place value of the given digits :

(a) 32519

2 2000

1 10

3 30000

(b) 345126

3 300000

5 5000

2 20

(c) 490875

8 800

9 90000

4 400000

(d) 753920

5 50000

7 700000

9 900

(e) 2458679 6 600 5 50000 2 2000000

4. Express the following numbers in figures, placing the commas at the right places.

(a) Thirty four thousand sixty-four = **34,064**

(b) Four lakh seventy three thousand seven hundred = **4,73,700**

(c) Two million thirty one thousand one hundred eight = **2,00,31,108**

(d) Four million eighty-eight thousand five hundred twenty-three
= **4,00,88,523**

(e) Ten lakh ninety one = **10,00,091**

5. Write the Hindu-Arabic numerals corresponding to each of the following :

(a) XXVIII = **28**

(b) XLV = **45**

(c) XCVI = **96**

(d) LXXXIX = **89**

(e) LXXVIII = **78**

(f) XCI = **91**

(g) XCIX = **99**

(h) XLI = **41**

6. Fill in >, < or = :

(a) XXXIV < XXXVI

(b) LXXXIX < XCI

(c) 100×2 = CC

(d) 7×5 > XXV

(e) LXIX < LXXI

(f) 10×4 = XL

7. Number of hundreds in a lakh = 1000

8. Number of lakh in a million = 10

9. Place value of 8 in the number = 8000000

Place value of 8 in the number = 80000

Difference between the place values = $8000000 - 80000 = 7920000$

10. Write in short form :

(a) $500000 + 400 + 7$

500407

(b) $8000000 + 70000 + 600 + 7$

8070607

(c) $9000000 + 500000 + 4000 + 60 + 9$

9504069

11. Write each of the following in expanded form :

(a) 93586 \Rightarrow **90000 + 3000 + 500 + 80 + 6**

(b) 806992 \Rightarrow **800000 + 0 + 6000 + 900 + 90 + 2**

(c) 1828684 \Rightarrow **1000000 + 800000 + 20000 + 8000 + 600 + 80 + 4**

12. Compare the numbers and put the correct symbol $<$, $>$ or $=$.

(a) 12,952 $<$ 19,252

(b) 70280 $<$ 72800

(c) 2,81,041 $<$ 2,81,410

(d) 80,899 $=$ 80,899

(e) 78,24,493 $<$ 78,42,349

(f) 824318 $<$ 8487134

13. Digits = 2, 5, 7, 4, 3

The smallest number = 23457

14. Digits = 8, 4, 2, 4

The smallest 4-digit number = 2448

15. Solve the followings :

(a)

5	9	3	7	8	5	4
+	2	0	3	0	5	7
<hr/>						
6	1	4	0	9	1	1

(b)

7	6	8	2	3	4	
+	1	2	4	3	7	8
<hr/>						
8	9	2	6	1	2	

(c)

6	8	9	2	0	3	
-	3	8	9	5	3	4
<hr/>						
2	9	9	6	6	9	

(d)

5	0	3	9	0	4	
-	2	7	3	6	5	6
<hr/>						
2	3	0	2	4	8	

(e) $34280 + 590735 - 243097$

5	9	0	7	3	5
+	3	4	2	8	0
<hr/>					
6	2	5	0	1	5

6	2	5	0	1	5	
-	2	4	3	0	9	7
<hr/>						
3	8	1	9	1	8	

(f) $34287 - 450893 + 579203$

5	7	9	2	0	3
+	3	4	2	8	7
<hr/>					
6	1	3	4	9	0

6	1	3	4	9	0	
-	4	5	0	8	9	3
<hr/>						
1	6	2	5	9	7	

16. Fill in the missing digits :

(a)

3	□	5	□	7	
+	1	4	□	6	□
<hr/>					
5	0	8	0	9	

(b)

7	6	□	3	0	
-	3	□	4	0	□
<hr/>					
□	2	9	2	8	

$$\begin{array}{r} 4 \boxed{8} 1 \boxed{7} 2 4 \\ - 1 5 3 4 \boxed{5} 5 \\ \hline \boxed{3} 2 \boxed{8} 2 6 \boxed{9} \end{array}$$

$$\begin{array}{r} 1 \boxed{2} 4 \boxed{3} 6 8 \boxed{3} \\ - 3 \boxed{0} 4 \boxed{2} 2 5 \\ \hline 9 3 9 4 \boxed{5} 8 \end{array}$$

17. Fill in the blanks :

- (a) $37 \times 0 = 0$ (b) $57 \times 100 = 5700$
 (c) $243 \times 50 = 12150$ (d) $16 \times 3000 = 48000$
 (e) $235 \div 5 = 47$ (f) $240 \div 40 = 6$
 (g) $42000 \div 600 = 70$ (h) $80000 \div 2000 = 40$

- 18.** (a) $7 \times 12 = 84$, So 84 is a **multiple** of 7 and 12.
 (b) $2 \times 3 \times 5 = 30$, So 2, 3, 5, 6, 10 and 15 are **factors** of 30.
 (c) 9 and 4 are factors of 36. So, 36 is **divided** by 9 and 4.
 (d) Among 26, 49, 234, 5831 and 12570. **49** and **5831** are odd numbers.
 (e) Among 35, 67, 578, 8649 and 13780. **578** and **13780** are even numbers.
 (f) Third and fourth multiple of 12 are **36** and **48** respectively.
 (g) Among 15, 29, 37 and 63 prime numbers are **29** and **37**.
 (h) Among 57, 69, 79 and 83 the composite numbers are **57** and **69**.
 (i) To make 283 divisible by 5, the smallest number that needs to be added to it is **2**.
 (j) Three factors of 12 other than 1 and 12 are **2**, **3** and **4**.

19. Multiply the following :

(a) 42×15

$$\begin{array}{r} 42 \\ \times 15 \\ \hline 210 \\ 420 \\ \hline 630 \end{array}$$

(b) 59×38

$$\begin{array}{r} 59 \\ \times 38 \\ \hline 472 \\ 1770 \\ \hline 2242 \end{array}$$

(c) 169×32

$$\begin{array}{r} 169 \\ \times 32 \\ \hline 338 \\ 5070 \\ \hline 5408 \end{array}$$

(d) 517×43

$$\begin{array}{r} 517 \\ \times 43 \\ \hline 1551 \\ 20680 \\ \hline 22231 \end{array}$$

(e) 4589×724

$$\begin{array}{r} 4589 \\ \times 724 \\ \hline 18356 \\ 91780 \\ 3212300 \\ \hline 3322436 \end{array}$$

20. Divide the following :

(a) $672 \div 16$

$$\begin{array}{r} 42 \\ 16 \overline{) 672} \\ \underline{-64} \downarrow \\ 32 \\ \underline{-32} \\ 0 \end{array}$$

(b) $480 \div 32$

$$\begin{array}{r} 15 \\ 32 \overline{) 480} \\ \underline{-32} \downarrow \\ 160 \\ \underline{-160} \\ 0 \end{array}$$

(c) $4488 \div 44$

$$\begin{array}{r} 102 \\ 44 \overline{) 4488} \\ \underline{-44} \downarrow \\ 88 \\ \underline{-88} \\ 0 \end{array}$$

(d) $30080 \div 128$

$$\begin{array}{r} 235 \\ 128 \overline{) 30080} \\ \underline{-256} \downarrow \\ 448 \\ \underline{-384} \downarrow \\ 640 \\ \underline{-640} \\ 0 \end{array}$$

(e) $68400 \div 450$

$$\begin{array}{r} 152 \\ 450 \overline{) 68400} \\ \underline{-450} \downarrow \downarrow \\ 2340 \\ \underline{-2250} \downarrow \\ 900 \\ \underline{-900} \\ 0 \end{array}$$

21. Simplify the following :

(a) $29 \times 6 - 12 \times 8 - 13 \times 6 + 82 \times 8$

$$= 174 - 96 - 78 + 656$$

$$= 830 - 174$$

$$= 656$$

$$\begin{aligned}
 \text{(b) } 640 \div 80 \times 4 - 8 \text{ of } 20 + 639 - 72 \div 9 \\
 &= 8 \times 4 - 8 \times 20 + 639 - 8 \\
 &= 32 - 160 + 639 - 8 \\
 &= 671 - 168 \\
 &= 503
 \end{aligned}$$

22. Write the first two common multiples of :

(a) 2 and 5

Multiples of 2 are : 2 4 6 8 10 12 14 16 18 20 22

Multiples of 5 are : 5 10 15 20 25 30 35 40

10 and 20 are common multiples of 2 and 5.

(b) 5 and 4

Multiples of 5 are : 5 10 15 20 25 30 35 40 45 50

Multiples of 4 are : 4 8 12 16 20 24 28 32 36 40 44

20 and 40 are common multiples of 5 and 4.

23. 630 divisible by 2.

261, 75, 630 divisible by 3.

75, 630 divisible by 5.

630 divisible by 10.

24. (a) \therefore The greatest 4-digit number = 9999

9999 is not divisible by 5.

9998 is not divisible by 5.

9997 is not divisible by 5.

9996 is not divisible by 5.

9995 is divisible by 5.

\therefore The greatest 4-digit number 9995 is divisible by 5.

$$\begin{array}{r}
 1\ 9\ 9\ 9 \\
 5 \overline{) 9\ 9\ 9\ 5} \\
 \underline{- 5} \\
 4\ 9 \\
 \underline{- 4\ 5} \\
 4\ 9 \\
 \underline{- 4\ 5} \\
 4\ 5 \\
 \underline{- 4\ 5} \\
 0
 \end{array}$$

(b) The numbers between 280 and 299 are divisible by both 2 and 3.

$$= 282, 288, 294$$

25. (a) 70

2	70
5	35
7	7
	1

$$\therefore 70 = 2 \times 5 \times 7$$

(b) 128

2	128
2	64
2	32
2	16
2	8
2	4
2	2
	1

$$\therefore 128 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$$



Exercise 1B

1. Fill in the blanks :

(a) $\frac{1}{3}$ of 21 = 7, $\frac{2}{5}$ of 40 = $2 \times 8 = 16$.

(b) $\frac{12}{7}$ is a/an, **Improper** fraction and $3\frac{4}{5}$ is a/an **Mixed** fraction.

(c) $\frac{3}{4} = \frac{9}{12}$, $\frac{5}{8} = \frac{25}{40}$, $\frac{7}{12} = \frac{14}{24}$

(d) $\frac{12}{16}$ in lowest term is $\frac{3}{4}$.

(e) In 63.75 place value of 6 is **60** that of 7 is $\frac{7}{10}$.

(f) 170 rupees 25 paise = ₹ **170.25**

2. True or False :

(a) $\frac{24}{40}$ and $\frac{3}{5}$ are equivalent fractions. **True**

(b) $\frac{5}{8} = \frac{30}{48}$ **True**

(c) $\frac{2}{12}$, $\frac{5}{12}$, $\frac{7}{12}$, $\frac{11}{12}$ and $\frac{7}{12}$ are like fractions **True**

(d) Expanded form of 9.285 = $9 + \frac{2}{10} + \frac{8}{100} + \frac{5}{100}$ **False**

(e) In $3\frac{7}{11}$ the integral part is 7. **False**

(f) $\frac{14}{9}$ is a mixed fraction. **False**

- (g) 93 cm = 9 m 3 cm
 (h) 8 km 250 m = 8250 m
 (i) 3754 mL = 3 L 754 mL
 (j) 2016 was a leap year.

False
True
True
True

3. Change the following :

- (a) $\frac{12}{5}$ and $\frac{42}{8}$ into mixed fractions.

$$\frac{12}{5} = 2\frac{2}{5}; \quad \frac{42}{8} = 5\frac{2}{8}$$

- (b) $3\frac{5}{8}$ and $7\frac{3}{7}$ into improper fractions.

$$3\frac{5}{8} = \frac{29}{8}; \quad 7\frac{3}{7} = \frac{52}{7}$$

- (c) $\frac{3}{4}$ and $\frac{5}{7}$ into like fractions.

$$\frac{3}{4} = \frac{3 \times 7}{4 \times 7} = \frac{21}{28} \quad \text{and} \quad \frac{5}{7} = \frac{5 \times 4}{7 \times 4} = \frac{20}{28}$$

- (d) $\frac{328}{1000}$ and $7\frac{9}{10}$ into decimal fractions.

$$\frac{328}{1000} = 0.328 \quad \text{and} \quad 7\frac{9}{10} = \frac{79}{10} = 7.9$$

- (e) 5 h 25 minutes to minutes.

$$\therefore 1 \text{ hour} = 60 \text{ minutes}$$

$$\therefore 5 \text{ hours} = 5 \times 60 \text{ minutes} = 300 \text{ minutes}$$

$$\therefore 5 \text{ hours } 25 \text{ minutes} = 300 \text{ minutes} + 25 \text{ minutes} \\ = 325 \text{ minutes}$$

- (f) 3 days 6 hours to hours.

$$\therefore 1 \text{ day} = 24 \text{ hours}$$

$$\therefore 3 \text{ days} = 3 \times 24 \text{ hours} = 72 \text{ hours}$$

$$\therefore 3 \text{ days } 6 \text{ hours} = 72 \text{ hours} + 6 \text{ hours} \\ = 78 \text{ hours}$$

4. Fill in the blanks using '>' '<' or '=' :

(a) $\frac{13}{17} \boxed{<} \frac{15}{17}$

(b) $\frac{37}{12} \boxed{=} 3\frac{1}{12}$

(c) $5\frac{3}{7} \boxed{>} 5\frac{3}{8}$

(d) 2.003 $\boxed{<} 2.03$

(e) 3 kg $\boxed{>} 300 \text{ g}$

(f) 5000 g $\boxed{<} 50 \text{ kg}$

5. Arrange in ascending order :

$$(a) \frac{3}{13}, \frac{5}{13}, \frac{7}{13}, \frac{9}{13}, \frac{10}{13}$$

$$(b) \frac{5}{16}, \frac{5}{13}, \frac{5}{12}, \frac{5}{9}, \frac{5}{3}$$

6. Arrange in descending order :

$$(a) 2.031, 2.03, 0.230, 0.203, 0.202$$

$$(b) 3.502, 3.5, 3.051, 3.05, 3.015$$

7. Do the sums :

$$(a) \frac{3}{7} + \frac{4}{7} = \frac{3+4}{7} \\ = \frac{7}{7} = 1$$

$$(b) \frac{7}{16} - \frac{1}{4} = \frac{7-1 \times 4}{16} \\ = \frac{7-4}{16} = \frac{3}{16}$$

$$(c) \frac{8}{9} - \frac{11}{9} + \frac{7}{9} = \frac{8-11+7}{9} \\ = \frac{15-11}{9} \\ = \frac{4}{9}$$

$$(d) \begin{array}{r} 37.406 + 2.53 + 1.701 \\ 37.406 \\ + 2.530 \\ + 1.701 \\ \hline 41.637 \end{array}$$

$$\therefore 37.406 + 2.53 + 1.701 = 41.637$$

$$(e) 39.8 - 23.54$$

$$\begin{array}{r} 39.80 \\ - 23.54 \\ \hline 16.26 \end{array}$$

$$\therefore 39.8 - 23.54 = 16.26$$

$$(f) 14 \text{ km} + 28 \text{ km } 550 \text{ m} - 30 \text{ km } 450 \text{ m}$$

$$\begin{array}{r} \text{km} \quad \text{m} \\ 14 \quad 000 \\ + 28 \quad 550 \\ \hline 42 \quad 550 \end{array} \quad \begin{array}{r} \text{km} \quad \text{m} \\ 42 \quad 550 \\ - 30 \quad 450 \\ \hline 12 \quad 100 \end{array}$$

$$\therefore 14 \text{ km} + 28 \text{ km } 550 \text{ m} - 30 \text{ km } 450 \text{ m} = 12 \text{ km } 100 \text{ m}$$

$$(g) 72 \text{ m } 54 \text{ cm} \times 7$$

$$\begin{array}{r} \text{m} \quad \text{cm} \\ 72 \quad 54 \\ \times 7 \\ \hline 507 \quad 78 \end{array}$$

$$\therefore 72 \text{ m } 54 \text{ cm} \times 7 = 507 \text{ m } 78 \text{ cm}$$

$$(h) 12 \text{ m } 13 \text{ cm} + 32 \text{ m } 7 \text{ cm} - 24 \text{ m } 83 \text{ cm}$$

$$\begin{array}{r} \text{m} \quad \text{cm} \\ 12 \quad 13 \\ + 32 \quad 07 \\ \hline 44 \quad 20 \end{array} \qquad \begin{array}{r} \text{m} \quad \text{cm} \\ 44 \quad 20 \\ - 24 \quad 83 \\ \hline 19 \quad 37 \end{array}$$

$$\therefore 12 \text{ m } 13 \text{ cm} + 32 \text{ m } 7 \text{ cm} - 24 \text{ m } 83 \text{ cm} = 19 \text{ m } 37 \text{ cm}$$

$$(i) 496 \text{ L } 880 \text{ mL} \div 16$$

$$\begin{array}{r} \text{L} \quad \text{mL} \\ 31 \quad 055 \\ 16 \overline{) 496 \quad 880} \\ \underline{-48} \\ 16 \\ \underline{-16} \\ 88 \\ \underline{-80} \\ 80 \\ \underline{-80} \\ 0 \end{array}$$

$$\therefore 496 \text{ L } 880 \text{ mL} \div 16 = 31 \text{ L } 55 \text{ mL}$$

$$(k) 245 \text{ kg } 250 \text{ g} \times 5$$

$$\begin{array}{r} \text{kg} \quad \text{g} \\ 245 \quad 250 \\ \times 5 \\ \hline 1226 \quad 250 \end{array}$$

$$\begin{aligned} \therefore 245 \text{ kg } 250 \text{ g} \times 5 \\ = 1226 \text{ kg } 250 \text{ g} \end{aligned}$$

$$(m) 243 \text{ m } 28 \text{ cm} \div 8$$

$$\begin{array}{r} \text{m} \quad \text{cm} \\ 30 \quad 41 \\ 8 \overline{) 243 \quad 28} \\ \underline{-24} \\ 3 \quad 2 \\ \underline{-3 \quad 2} \\ 8 \\ \underline{-8} \\ 0 \end{array}$$

$$\therefore 243 \text{ m } 28 \text{ cm} \div 8 = 30 \text{ m } 41 \text{ cm}$$

$$(j) 24 \text{ kg} + 42 \text{ kg } 350 \text{ g} - 37 \text{ kg } 570 \text{ g}$$

$$\begin{array}{r} \text{kg} \quad \text{g} \\ 24 \quad 000 \\ + 42 \quad 350 \\ \hline 66 \quad 350 \end{array} \qquad \begin{array}{r} \text{kg} \quad \text{g} \\ 66 \quad 350 \\ - 37 \quad 570 \\ \hline 28 \quad 780 \end{array}$$

$$\begin{aligned} \therefore 24 \text{ kg} + 42 \text{ kg } 350 \text{ g} - 37 \text{ kg } 570 \text{ g} \\ = 28 \text{ kg } 780 \text{ g} \end{aligned}$$

$$(l) 17 \text{ L} + 14 \text{ L } 850 \text{ mL} - 26 \text{ L } 375 \text{ mL}$$

$$\begin{array}{r} \text{L} \quad \text{mL} \\ 17 \quad 000 \\ + 14 \quad 850 \\ \hline 31 \quad 850 \end{array} \qquad \begin{array}{r} \text{L} \quad \text{mL} \\ 31 \quad 850 \\ - 26 \quad 375 \\ \hline 05 \quad 475 \end{array}$$

$$\begin{aligned} \therefore 17 \text{ L} + 14 \text{ L } 850 \text{ mL} - 26 \text{ L } 375 \text{ mL} \\ = 5 \text{ L } 475 \text{ mL} \end{aligned}$$

8. Find the following :

(a) A glass full of milk = $\frac{4}{9}$

$$\begin{aligned}\text{Fraction of empty glass} &= 1 - \frac{4}{9} = \frac{1 \times 9 - 4}{9} \\ &= \frac{9 - 4}{9} = \frac{5}{9}\end{aligned}$$

(b) A class of girls = $\frac{2}{5}$

$$\begin{aligned}\text{Fraction of class boys} &= 1 - \frac{2}{5} = \frac{1 \times 5 - 2}{5} \\ &= \frac{5 - 2}{5} = \frac{3}{5}\end{aligned}$$

(c) Sides of a rectangle = 9 cm, 6 cm

$$\begin{aligned}\text{Perimeter of a rectangle} &= 2 \times (\text{side} + \text{side}) \\ &= 2 \times (9 \text{ cm} + 6 \text{ cm}) \\ &= 2 \times 15 \text{ cm} \\ &= 30 \text{ cm}\end{aligned}$$

(d) Side of square = 12 cm

$$\begin{aligned}\text{Area of square} &= 12 \text{ cm} \times 12 \text{ cm} \\ &= 144 \text{ cm}^2\end{aligned}$$

(e) Radius of circle = 16 cm

$$\begin{aligned}\text{Diameter of circle} &= 2 \times \text{radius} \\ &= 2 \times 16 \text{ cm} \\ &= 32 \text{ cm}\end{aligned}$$

9. Draw the following :

(a) Do yourself.

(b) Do yourself.

10. Cost of a dozen eggs = ₹ 120

$$\begin{aligned}\text{Cost of 4 dozen eggs} &= ₹ 120 \times 4 \\ &= ₹ 480\end{aligned}$$

$$\begin{array}{r} 120 \\ \times 4 \\ \hline 480 \end{array}$$

11. Cost of 8 toy cars = ₹ 960

$$\begin{aligned}\text{Cost of each toy car} &= ₹ 960 \div 8 \\ &= ₹ 120\end{aligned}$$

$$\begin{array}{r} 120 \\ 8 \overline{) 960} \\ \underline{-8} \\ 16 \\ \underline{-16} \\ 0 \end{array}$$

12. A seminar started = 9 : 15 a.m.

Time of seminar = 4 hours 30 minutes

The seminar is over = 9 : 15 + 4 h 30 min

= 13 h 45 min

= 1 : 45 p.m.

	h	min
	9	15
+	4	30
	13	45

13. Length of a rectangular field = 50 m

Breadth of a rectangular field = 30 m

Area of a rectangular field = 50 m \times 30 m = 1500 m²

Length of a rectangular in a corner = 30 m

Breadth of a rectangular in a corner = 20 m

Area of a corner = 30 m \times 20 m = 600 m²

Area of remaining field = 1500 m² - 600 m²
= 900 m²

14. (a) $3 \times 10 + 5 = 30 + 5 = 35$ students

(b) Class V

(c) Class III



Numbers



Exercise 2A

1. Write in the short form :

(a) 60000 + 4000 + 800 + 20 + 7

64827

(b) 800000 + 70000 + 6000 + 300 + 90 + 2

876392

(c) 5000000 + 600000 + 30000 + 8000 + 600 + 70 + 9

5638679

(d) 80000000 + 5000000 + 600000 + 90000 + 7000 + 200 + 20 + 8

85697228

(e) 200000000 + 40000000 + 8000000 + 0 + 80000 + 1000 + 0 + 80 + 8

248081088

2. Write in expanded form :

- (a) $30,835 = 30000 + 0 + 800 + 30 + 5$
 (b) $3,83,098 = 300000 + 80000 + 3000 + 0 + 90 + 8$
 (c) $79,53,482 = 7000000 + 900000 + 50000 + 3000 + 400 + 80 + 2$
 (d) $9,29,09,810 = 90000000 + 2000000 + 900000 + 0 + 9000 + 800 + 10 + 0$
 (e) $65,78,00,302 = 600000000 + 50000000 + 7000000 + 800000 + 0 + 0 + 300 + 0 + 2$

3. Write in figures :

- (a)

TC	C

TL	L

TTh	Th
5	0

H	T	O
2	3	6
- (b)

TC	C

TL	L
	2

TTh	Th
4	5

H	T	O
7	4	8
- (c)

TC	C

TL	L
7	2

TTh	Th
9	3

H	T	O
9	2	0
- (d)

TC	C
	5

TL	L
6	0

TTh	Th
9	0

H	T	O
5	6	6
- (e)

TC	C
1	6

TL	L
9	1

TTh	Th
0	4

H	T	O
2	5	6

4. Write in figures :

- (a)

HB	TB	B

HM	TM	M

HTh	TTh	Th
4	6	3

H	T	O
0	0	0
- (b)

HB	TB	B

HM	TM	M

HTh	TTh	Th
2	0	0

H	T	O
8	7	3
- (c)

HB	TB	B

HM	TM	M
		5

HTh	TTh	Th
3	0	0

H	T	O
5	1	7
- (d)

HB	TB	B

HM	TM	M
	3	5

HTh	TTh	Th
2	0	1

H	T	O
7	0	9
- (e)

HB	TB	B
		9

HM	TM	M
0	6	4

HTh	TTh	Th
0	0	0

H	T	O
0	0	0

5. Write in words using the Indian system of numeration :

- (a) $8640468 =$ Eighty six lakh forty thousand four hundred and sixty eight
 (b) $58235481 =$ Five crore eighty two lakh thirty five thousand four hundred and eighty one
 (c) $67805000 =$ Six crore seventy eight lakh five thousand
 (d) $173050872 =$ Seventeen crore thirty lakh fifty thousand eight hundred and seventy two

- (e) 500903080 = Fifty crore nine lakh three thousand eighty
- 6. Write the number names using the international system of numeration :**
- (a) 9640758 = Nine million six hundred forty thousand seven hundred fifty eight
- (b) 59236474 = Fifty nine million two hundred thirty six thousand four hundred seventy four
- (c) 496384025 = Four hundred ninety six million three hundred eighty four thousand twenty five
- (d) 3060060000 = Three billion sixty million sixty thousand
- (e) 8476345140 = Eight billion four hundred seventy six million three hundred forty five thousand one hundred forty
- 7. Rewrite the numbers with commas separating the periods using first the Indian system and then the international system of numeration.**
- (a) 32594684
 Indian system = 3,25,94,684
 International system = 32,594,684
- (b) 665566
 Indian system = 6,65,566
 International system = 665,566
- (c) 43800434
 Indian system = 4,38,00,434
 International system = 43,800,434
- (d) 187348638
 Indian system = 18,73,48,638
 International system = 187,348,638
- (e) 960004021
 Indian system = 96,00,04,021
 International system = 960,004,021
- 8. Write four consecutive numbers that come after :**

(a) 89,687	89,688	89,689	89,690	89,691
(b) 3,48,898	3,48,899	3,48,900	3,48,901	3,48,902
(c) 58,73,199	58,73,200	58,73,201	58,73,202	58,73,203
(d) 6,81,00,903	6,81,00,904	6,81,00,905	6,81,00,906	6,81,00,907

(e) 86,03,93,000 86,03,93,001 86,03,93,002 86,03,93,003 86,03,93,004

9. Write the predecessor of :

(a) 85,999 86,000 (b) 1,46,999 1,47,000

(c) 6,90,207 6,90,208 (d) 83,09,999 83,10,000

(e) 7,46,39,822 7,46,39,823 (f) 17,28,71,067 17,28,71,068

10. Write the successor of :

(a) 78,000 78,001 (b) 88,099 88,100

(c) 7,89,999 7,90,000 (d) 57,63,806 57,63,807

(e) 909,99,999 910,00,000 (f) 36,04,06,019 36,04,06,020



Exercise 2B

1. Fill in the blanks :

(a) In 6 27 984, 6 is in the **lakh** place, and 7 is in the **thousand** place.

(b) In 86 40 771, 8 is in the **ten lakh** place, and 4 is in the **ten thousand** place.

(c) In 3 85 48 007, 3 is in the **crore** place, and 5 is in the **lakh** place.

(d) In 6 89 953, the digit in the lakhs place is **6**, and its place value is **6,00,000**.

(e) In 96 30 498, the digit in the ten lakhs place is **9**, and its place value is **90,00,000**.

2. Write the place value of the given digits :

(a) 62,987

6 60,000

2 2,000

9 900

7 7

(b) 7,68,425

7 7,00,000

6 60,000

8 8,000

4 400

(c) 8,39,205

2 200

8 8,00,000

3 30,000

9 9,000

(d) 82,93,570

8 80,00,000

2 2,00,000

3 3,000

7 70

(e) 4,87,90,662

4 4,00,00,000

8 80,00,000

7 7,00,000

9 90,000

(f) 52,34,00,698

(2) 2,00,00,000

(5) 50,00,00,000

(4) 4,00,000

(3) 30,00,000

3. Write >, < or = :

(a) 29,865 > 29,856

(b) 689783 < 689873

(c) 34,85,973 < 3,48,59,730

(d) 5,000,000 = 50,00,000

(e) 782156 = 782156

(f) 12,34,97,658 > 12,34,97,568

4. Write the smallest and the largest numbers among the given :

Smallest

Largest

(a) 3,76,239

4,76,349

(b) 55,555

5,55,55,555

(c) 473582

745382

(d) 5,000,000

60,000,000

(e) 2468791

2486791

5. Write in ascending order :

(a) 87852, 257381, 320054, 725831

(b) 372094, 921837, 4203857, 5970285

(c) 69023573, 70925684, 75307946, 83578025

(d) 17283406, 29503714, 37018924, 40125763

(e) 700000, 6000000, 40000000, 50000000

6. Write in descending order :

(a) 30,26,78,318; 30,24,67,594; 5,27,05,392; 5,27,05,329

(b) 80,59,31,535; 7,81,39,421; 4,35,62,108; 4,35,26,108

(c) 300000000; 200000000; 30000000; 4000000

(d) 427508931; 378125928; 92857361; 51528357

(e) 378201492; 92854621; 57349573; 35845603

7. Make the greatest and smallest numbers using all the given digits :

Smallest

Largest

(a) 3 2 5 8 0 7 9

2035789

9875320

(b) 1 4 0 5 3 6 2 8

10234568

86543210

(c) 2 1 7 9 4 3 5 8

12345789

98754321

(d) 6 3 9 0 7 5 4 1

10345679

97654310

(e) 4 2 1 3 5 7 8 9

12345789

98754321



Exercise 2C

1. Write the Roman numerals for each of the following :

(a) $57 = 50 + 7$

$= L + VII$

$= LVII$

(c) $97 = 90 + 7$

$= XC + VII$

$= XCVII$

(e) $176 = 100 + 70 + 6$

$= C + LXX + VI$

$= CLXXVI$

(g) $382 = 300 + 80 + 2$

$= CCC + LXXX + II$

$= CCCLXXXII$

(i) $450 = 400 + 50$

$= CD + L$

$= CDL$

(k) $489 = 400 + 80 + 9$

$= CD + LXXX + IX$

$= CDLXXXIX$

(b) $84 = 80 + 4$

$= LXXX + IV$

$= LXXXIV$

(d) $109 = 100 + 9$

$= C + IX$

$= CIX$

(f) $232 = 200 + 30 + 2$

$= CC + XXX + II$

$= CCXXXII$

(h) $444 = 400 + 40 + 4$

$= CD + XL + IV$

$= CDXLIV$

(j) $468 = 400 + 60 + 8$

$= CD + LX + VIII$

$= CDLXVIII$

(l) $499 = 400 + 90 + 9$

$= CD + XC + IX$

$= CDXCIX$

2. Write the Hindu-Arabic numerals for each of the following :

(a) $XIV = X + IV$

$= 10 + 4$

$= 14$

(c) $XLVII = XL + VII$

$= 40 + 7$

$= 47$

(e) $LXIX = LX + IX$

$= 60 + 9$

$= 69$

(g) $CLX = C + LX$

$= 100 + 60$

$= 160$

(b) $XXIX = XX + IX$

$= 20 + 9$

$= 29$

(d) $XLIX = XL + IX$

$= 40 + 9$

$= 49$

(f) $LXXXIV = LXXX + IV$

$= 80 + 4$

$= 84$

(h) $CCXLIV = CC + XL + IV$

$= 200 + 40 + 4$

$= 244$

(i) $CDXXVIII = CD + XX + VIII$ $= 400 + 20 + 8$ $= 428$	(j) $CDLIX = CD + L + IX$ $= 400 + 50 + 9$ $= 459$
(k) $CDXCIX = CD + XC + IX$ $= 400 + 90 + 9$ $= 499$	(l) $CCCXXIII = CCC + XX + III$ $= 300 + 20 + 3$ $= 323$

3. Fill in '>' '<' or '=' :

(a) XL <input type="text" value=">"/> XXXIX	(b) XL <input type="text" value="<"/> LX
(c) XLI <input type="text" value="<"/> LXI	(d) XC <input type="text" value=">"/> LXXXIX
(e) XLVII <input type="text" value="<"/> LXXIX	(f) XCIX <input type="text" value=">"/> XCIV
(g) CDLVI <input type="text" value=">"/> CDLIV	(h) CCXIV <input type="text" value="<"/> CCXVI
(i) CXLVI <input type="text" value="<"/> CXCIV	(j) CXL <input type="text" value="<"/> CLX
(k) CDLX <input type="text" value=">"/> CDXL	(l) CXLV <input type="text" value="<"/> CLXV

4. Write in ascending order :

(a) XL, XLIX, LXXIX, XC, XCIII, XCV
 (b) XV, XX, LIX, LX, LXXIV, XCVI, CX

5. Write in descending order :

(a) CXIX, XCIX, LXV, LXI, LIX, XLV
 (b) CXVI, CXV, XCVI, XCV, LXIV, XLIV

6. Write the Roman numerals for each of the following :

(a) $4 \times 8 = 32$ $= XXXII$	(b) $100 + 2 = 102$ $= CII$
(c) $78 \div 2 = 39$ $= XXXIX$	(d) $VI \times IV = 6 \times 4 = 24$ $= XXIV$
(e) $CLIX - CXIV = 159 - 114$ $= 45$ $= XLV$	(f) $XLV \div IX = 45 \div 9$ $= 5$ $= V$
(g) $12 \times 8 = 96$ $= XCVI$	(h) $CLIX - LXII = 159 - 62$ $= 97$ $= XCVII$
(i) $240 \div 4 = 60$ $= LX$	(j) $175 - 60 = 115$ $= CXV$
(k) $XLV + CLV = 45 + 155$ $= 200$ $= CC$	(l) $LXIV \div XVI = 64 \div 16$ $= 4$ $= IV$



The Ganga Basin is India's largest river basin covering an area = 10,86,000 sq. km.

Name of the Indian Number System : Ten lakh eighty six thousand

Name of the International Number System : One million eighty six thousand

Apply Your Learning

Critical and Logical Thinking, Applicative Thinking

On a particular day, cash available in a bank account is rupees
= One crore forty-six thousand seven hundred fifty

Amount in figures the Indian Number System : 1,00,46,750

Think, Solve and Learn

Problem-solving, Critical and Logical thinking

The population of city A = 46,50,884

The population of city B is 1,000 less than that of city A.

∴ The population of city B = 46,50,884 – 1,000 = 46,49,884

The population of city C is 10,000 more than that of city A.

∴ The population of city C = 46,50,884 + 10,000 = 46,60,884

The population of three cities in ascending order = 46,49,884; 46,50,884; 46,60,884

The highest population of city C is 46,60,884.



Operations On Large Numbers



Exercise 3A

1. Find the sum of :

(a) 436912 and 328132

TL L TTh Th H T O

$$\begin{array}{r} \boxed{1} \quad \boxed{1} \\ 4 \quad 3 \quad 6 \quad 9 \quad 1 \quad 2 \\ + 3 \quad 2 \quad 8 \quad 1 \quad 3 \quad 2 \\ \hline 7 \quad 6 \quad 5 \quad 0 \quad 4 \quad 4 \end{array}$$

So, the sum is 765044.

(b) 5281622 and 182473

TL L TTh Th H T O

$$\begin{array}{r} \boxed{1} \quad \boxed{1} \\ 5 \quad 2 \quad 8 \quad 1 \quad 6 \quad 2 \quad 2 \\ + 1 \quad 8 \quad 2 \quad 4 \quad 7 \quad 3 \\ \hline 5 \quad 4 \quad 6 \quad 4 \quad 0 \quad 9 \quad 5 \end{array}$$

So, the sum is 5464095.

- (c) 75206418, 4545 and 38940526 (d) 574529 and 45873

TC	C	TL	L	T	Th	Th	H	T	O
<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>					
7	5	2	0	6	4	1	8		
+				4	5	4	5		
+	3	8	9	4	0	5	2	6	
<hr/>									
1	1	4	1	5	1	4	8	9	

So, the sum is 114151489.

TL	L	T	Th	Th	H	T	O
<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>			
5	7	4	5	2	9		
+	4	5	8	7	3		
<hr/>							
6	2	0	4	0	2		

So, the sum is 620402.

2. Add the following :

(a)

<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>1</u>
2	5	4	1	6	7	3	5 0
+	3	5	8	2	0	1	9 5
+	4	3	6	1	0	8	2 5
+	1	0	2	5	3	4	7 3 0
<hr/>							
4	3	6	1	3	3	1	0 0

(b)

<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
1	3	5	2 5	0 0 8
+	9	8	4 7	6 5 2
+	2	8	0 0	0 4
<hr/>				
2	3	6	5 2	6 6 4

3. Fill in the missing digits :

(a)

1	3	5	<u>1</u>	6	2
+	4	6	5	1	<u>3</u>
+	<u>2</u>	5	4	3	<u>5</u> 3
<hr/>					
4	<u>3</u>	<u>6</u>	0	2	8

(b)

2	<u>2</u>	0	<u>0</u>	5	<u>6</u> 3
+	<u>3</u>	3	<u>2</u>	4	6 9 <u>3</u>
+	7	6	5	<u>2</u>	4 5
<hr/>					
6	2	9	0	5	0 1

4. The difference between two number = 6835241

The smaller number = 2301256

The greater number = 6835241 + 2301256

= 9136497

<u>1</u>
6 8 3 5 2 4 1
+ 2 3 0 1 2 5 6
<hr/>
9 1 3 6 4 9 7

5. The number of woman in a town = 4,39,782

The number of man in a town = 6,93,827

The number of children in a town = 1,14,326

The total population of that town

= 4,39,782 + 6,93,827 + 1,14,326

= 12,47,935

<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
4	3	9	7	8 2
+	6	9	3	8 2 7
+	1	1	4	3 2 6
<hr/>				
1	2	4	7	9 3 5

6. Sales report of a toy factory in year 2020-21 = 867203

Sales report of a toy factory in year 2021-22 = 1053489

Sales report of a toy factory in year 2022-23 = 5162405

The total sale from the year 2020 to 2023 = 867203 + 1053489 + 5162405
= 70,83,097

$$\begin{array}{r}
 \boxed{1} \boxed{1} \boxed{1} \boxed{1} \quad \boxed{1} \\
 8 \ 6 \ 7 \ 2 \ 0 \ 3 \\
 + 1 \ 0 \ 5 \ 3 \ 4 \ 8 \ 9 \\
 + 5 \ 1 \ 6 \ 2 \ 4 \ 0 \ 5 \\
 \hline
 7 \ 0 \ 8 \ 3 \ 0 \ 9 \ 7
 \end{array}$$

7. Cost of first ring = ₹ 1,18,406

Cost of second ring = ₹ 95,642

The total cost of rings = ₹ 1,18,406 + ₹ 95,642
= ₹ 2,14,048

$$\begin{array}{r}
 \boxed{1} \boxed{1} \boxed{1} \\
 1 \ 1 \ 8 \ 4 \ 0 \ 6 \\
 + \ 9 \ 5 \ 6 \ 4 \ 2 \\
 \hline
 2 \ 1 \ 4 \ 0 \ 4 \ 8
 \end{array}$$

8. A man had = ₹ 1,00,00,000

Money spent to buy a car = ₹ 12,60,507

Money spent to buy a flat = ₹ 53,51,600

Money spent to furnish the flat = ₹ 2,32,420

Total money spent = ₹ 1260507 + ₹ 5351600 + ₹ 232420
= ₹ 68,44,527

$$\begin{array}{r}
 \boxed{1} \quad \boxed{1} \\
 1 \ 2 \ 6 \ 0 \ 5 \ 0 \ 7 \\
 + 5 \ 3 \ 5 \ 1 \ 6 \ 0 \ 0 \\
 + \ 2 \ 3 \ 2 \ 4 \ 2 \ 0 \\
 \hline
 6 \ 8 \ 4 \ 4 \ 5 \ 2 \ 7
 \end{array}$$



Exercise 3B

1. Subtract the following :

(a)

$$\begin{array}{r}
 \boxed{6} \boxed{9} \boxed{9} \boxed{9} \boxed{9} \boxed{9} \boxed{10} \\
 7 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \\
 - 4 \ 6 \ 7 \ 8 \ 3 \ 5 \ 4 \\
 \hline
 2 \ 3 \ 2 \ 1 \ 6 \ 4 \ 6
 \end{array}$$

(b)

$$\begin{array}{r}
 \boxed{6} \boxed{10} \boxed{7} \boxed{12} \\
 7 \ 0 \ 8 \ 2 \ 3 \ 4 \ 9 \\
 - 6 \ 8 \ 6 \ 5 \ 2 \ 4 \ 9 \\
 \hline
 0 \ 2 \ 1 \ 7 \ 1 \ 0 \ 0
 \end{array}$$

2. Find the difference :

(a) 70235624 – 13568242

$$\begin{array}{r}
 \text{C TL L TTh Th H T O} \\
 \boxed{6} \boxed{9} \boxed{11} \boxed{12} \boxed{15} \boxed{5} \boxed{12} \\
 7 \ 0 \ 2 \ 3 \ 5 \ 6 \ 2 \ 4 \\
 - 1 \ 3 \ 5 \ 6 \ 8 \ 2 \ 4 \ 2 \\
 \hline
 5 \ 6 \ 6 \ 6 \ 7 \ 3 \ 8 \ 2
 \end{array}$$

So, the difference is 56667382.

(b) 14205120 – 5809434

$$\begin{array}{r}
 \text{C TL L TTh Th H T O} \\
 \boxed{0} \boxed{13} \boxed{11} \boxed{9} \boxed{14} \boxed{10} \boxed{11} \boxed{10} \\
 1 \ 4 \ 2 \ 0 \ 5 \ 1 \ 2 \ 0 \\
 - \ 5 \ 8 \ 0 \ 9 \ 4 \ 3 \ 4 \\
 \hline
 0 \ 8 \ 3 \ 9 \ 5 \ 6 \ 8 \ 6
 \end{array}$$

So, the difference is 8395686.

(c) $9483526 - 7256081$

	TL	L	TTh	Th	H	T	O
			7	13	4	12	
	9	4	8	3	5	2	6
-	7	2	5	6	0	8	1
	2	2	2	7	4	4	5

So, the difference is 2227445.

(d) $10101010 - 2635845$

	C	TL	L	TTh	Th	H	T	O
	0	9	10	9	10	9	10	10
	1	0	1	0	1	0	1	0
-		2	6	3	5	8	4	5
	0	7	4	6	5	1	6	5

So, the difference is 7465165.

3. Fill in the missing digits :

(a)

	5	8	6	0	7	9	0
-	4	3	3	7	3	2	2
	1	5	2	3	4	6	8

(b)

	2	6	5	0	9	3
-	1	0	4	6	2	7
	1	6	0	4	6	6

4. The sum of two number = 989432651

The smaller number = 78349999

The other number = $989432651 - 78349999$

= 911082652

989432651
- 78349999
911082652

5. The number = $2,94,495 - 87,653$

294495
- 87653
206842

∴ The number to be added is 206842.

6. Sanjay bought a flat = ₹ 3,75,78,640

Sanjay sold a flat = ₹ 3,82,87,460

Sanjay earn money = ₹ 3,82,87,460 - ₹ 3,75,78,640

= ₹ 7,08,820

His profit = ₹ 7,08,820

38287460
- 37578640
00708820

7. A factory produced fans in one year = 8662594

A factory produced fans in next year = 7802349

The decrease in the production of fans

= $8662594 - 7802349$

= 860245

8662594
- 7802349
0860245

8. Number of candidates passed in first division = 298352

Number of candidates passed in second and third division = 203245

$$\begin{array}{r} 298352 \\ + 203245 \\ \hline 501597 \end{array}$$

Total number of candidates passed in board exams = 298352 + 203245
= 501597

Number of candidates appeared for the exams = 604212

Total number of candidates passed in board exams = 501597

$$\begin{array}{r} 604212 \\ - 501597 \\ \hline 102615 \end{array}$$

Number of candidates could not clear the exams = 604212 – 501597
= 102615



Exercise 3C

1. Multiply the following :

(a)

$$\begin{array}{r} 37625 \\ \times 329 \\ \hline 338625 \\ 752500 \\ 11287500 \\ \hline 12378625 \end{array}$$

So, the answer is 12378625.

(c)

$$\begin{array}{r} 65481 \\ \times 235 \\ \hline 327405 \\ 1964430 \\ 13096200 \\ \hline 15388035 \end{array}$$

So, the answer is 15388035.

(b)

$$\begin{array}{r} 42388 \\ \times 365 \\ \hline 211940 \\ 2543280 \\ 12716400 \\ \hline 15471620 \end{array}$$

So, the answer is 15471620.

(d)

$$\begin{array}{r} 73952 \\ \times 2468 \\ \hline 591616 \\ 4437120 \\ 29580800 \\ 147904000 \\ \hline 182513536 \end{array}$$

So, the answer is 182513536.

2. Find the product :

(a) 3500×73

$$\begin{array}{r} 3500 \\ \times 73 \\ \hline 10500 \\ 245000 \\ \hline 255500 \end{array}$$

So, the product is 255500.

(b) 9645×854

$$\begin{array}{r} 9645 \\ \times 854 \\ \hline 38580 \\ 482250 \\ 7716000 \\ \hline 8236830 \end{array}$$

So, the product is 8236830.

(c) 62468×1210

$$\begin{array}{r} 62468 \\ \times 1210 \\ \hline 00000 \\ 624680 \\ 12493600 \\ 62468000 \\ \hline 75586280 \end{array}$$

So, the product is 75586280.

(d) 2715×3409

$$\begin{array}{r} 2715 \\ \times 3409 \\ \hline 24435 \\ 00000 \\ 1086000 \\ 8145000 \\ \hline 9255435 \end{array}$$

So, the product is 9255435.

3. Multiply the following :

(a) 91124 by 902

$$\begin{array}{r} 91124 \\ \times 902 \\ \hline 182248 \\ 000000 \\ 82011600 \\ \hline 82193848 \end{array}$$

So, the answer is 82193848.

(b) 21845 by 368

$$\begin{array}{r} 21845 \\ \times 368 \\ \hline 174760 \\ 1310700 \\ 6553500 \\ \hline 8038960 \end{array}$$

So, the answer is 8038960.

(c) 8991 by 2213

$$\begin{array}{r} 8991 \\ \times 2213 \\ \hline 26973 \\ 89910 \\ 1798200 \\ 17982000 \\ \hline 19897083 \end{array}$$

So, the answer is 19897083.

(d) 40123 by 2981

$$\begin{array}{r} 40123 \\ \times 2981 \\ \hline 40123 \\ 3209840 \\ 36110700 \\ 80246000 \\ \hline 119606663 \end{array}$$

So, the answer is 119606663.

4. A shoe factory produces shoe in a day = 5670
 A shoe factory produces shoe in a year = 5670×365
 $= 2069550$
 (\because 1 year = 365 days)

$$\begin{array}{r}
 5670 \\
 \times 365 \\
 \hline
 28350 \\
 340200 \\
 1701000 \\
 \hline
 2069550
 \end{array}$$

5. Rakesh saw books at a book stall during book fair = 4923
 Number of stalls same capacity = 142
 Total number of books in book fair = 4923×142
 $= 699066$

$$\begin{array}{r}
 4923 \\
 \times 142 \\
 \hline
 9846 \\
 196920 \\
 492300 \\
 \hline
 699066
 \end{array}$$

6. Number of students in a college = 2890
 Each student pay as half-yearly fees = ₹ 9855
 Total half-yearly fees = $2890 \times ₹ 9855$
 $= ₹ 28480950$
 Fees collected in a year = ₹ 28480950×2
 $= ₹ 56961900$

$$\begin{array}{r}
 2890 \\
 \times 9855 \\
 \hline
 14450 \\
 144500 \\
 2312000 \\
 26010000 \\
 \hline
 28480950
 \end{array}$$

7. The greatest number of four digit = 6542
 The smallest number of four digit = 2456
 \therefore Product = 6542×2456
 $= 16067152$

$$\begin{array}{r}
 6542 \\
 \times 2456 \\
 \hline
 39252 \\
 327100 \\
 2616800 \\
 13084000 \\
 \hline
 16067152
 \end{array}$$



Exercise 3D

1. Divide and find the quotient and remainder :

(a) $89645 \div 73$

(b) $348253 \div 69$

$$\begin{array}{r}
 1228 \\
 73 \overline{) 89645} \\
 \underline{-73} \\
 166 \\
 \underline{-146} \\
 204 \\
 \underline{-146} \\
 585 \\
 \underline{-584} \\
 1
 \end{array}$$

Quotient = 1228, Remainder = 1

(c) $2017908 \div 543$

$$\begin{array}{r}
 3716 \\
 543 \overline{) 2017908} \\
 \underline{-1629} \\
 3889 \\
 \underline{-3801} \\
 880 \\
 \underline{-543} \\
 3778 \\
 \underline{-3258} \\
 120
 \end{array}$$

Quotient = 3716,
Remainder = 120

(e) $23365773 \div 347$

$$\begin{array}{r}
 67336 \\
 347 \overline{) 23365773} \\
 \underline{-2082} \\
 2545 \\
 \underline{-2429} \\
 1167 \\
 \underline{-1041} \\
 1267 \\
 \underline{-1041} \\
 2263 \\
 \underline{-2082} \\
 181
 \end{array}$$

$$\begin{array}{r}
 5047 \\
 69 \overline{) 348253} \\
 \underline{-345} \\
 325 \\
 \underline{-276} \\
 493 \\
 \underline{-483} \\
 10
 \end{array}$$

Quotient = 5047,

Remainder = 10

(d) $7348251 \div 903$

$$\begin{array}{r}
 8137 \\
 903 \overline{) 7348251} \\
 \underline{-7224} \\
 1242 \\
 \underline{-903} \\
 3395 \\
 \underline{-2709} \\
 6861 \\
 \underline{-6321} \\
 540
 \end{array}$$

Quotient = 8137,
Remainder = 540

(f) $21922100 \div 525$

$$\begin{array}{r}
 41756 \\
 525 \overline{) 21922100} \\
 \underline{-2100} \\
 922 \\
 \underline{-525} \\
 3971 \\
 \underline{-3675} \\
 2960 \\
 \underline{-2625} \\
 3350 \\
 \underline{-3150} \\
 200
 \end{array}$$

Quotient = 67336,

Remainder = 181

Quotient = 41756,

Remainder = 200

2. Divide the following :

(a) $91284 \div 46$

$$\begin{array}{r} 1984 \\ 46 \overline{) 91284} \\ \underline{-46} \\ 452 \\ \underline{-414} \\ 388 \\ \underline{-368} \\ 204 \\ \underline{-184} \\ 20 \end{array}$$

Quotient = 1984,

Remainder = 20

(c) $31842 \div 206$

$$\begin{array}{r} 154 \\ 206 \overline{) 31842} \\ \underline{-206} \\ 1124 \\ \underline{-1030} \\ 942 \\ \underline{-824} \\ 118 \end{array}$$

Quotient = 154,

Remainder = 118

(e) $1760 \div 107$

$$\begin{array}{r} 16 \\ 107 \overline{) 1760} \\ \underline{-107} \\ 690 \\ \underline{-642} \\ 48 \end{array}$$

(b) $8750 \div 35$

$$\begin{array}{r} 250 \\ 35 \overline{) 8750} \\ \underline{-70} \\ 175 \\ \underline{-175} \\ 00 \end{array}$$

Quotient = 250,

Remainder = 0

(d) $4005730 \div 775$

$$\begin{array}{r} 5168 \\ 775 \overline{) 4005730} \\ \underline{-3875} \\ 1307 \\ \underline{-775} \\ 5323 \\ \underline{-4650} \\ 6730 \\ \underline{-6200} \\ 530 \end{array}$$

Quotient = 5168,

Remainder = 530

(f) $2368 \div 18$

$$\begin{array}{r} 131 \\ 18 \overline{) 2368} \\ \underline{-18} \\ 56 \\ \underline{-54} \\ 28 \\ \underline{-18} \\ 10 \end{array}$$

Quotient = 16,
Remainder = 48

Quotient = 131,
Remainder = 10

3. The largest number of 9-digit = 999999999

The largest number of 2-digit = 99

$$\begin{array}{r}
 10101010 \\
 99 \overline{) 99999999} \\
 \underline{-99} \\
 099 \\
 \underline{-99} \\
 099 \\
 \underline{-99} \\
 099 \\
 \underline{-99} \\
 09 \\
 \underline{}
 \end{array}$$

Quotient = 10101010, Remainder = 9

4. The greatest number of 4-digit = 9975

Number is divisible by 25 = $9975 \div 25$

$$\begin{array}{r}
 399 \\
 25 \overline{) 9975} \\
 \underline{-75} \\
 247 \\
 \underline{-225} \\
 225 \\
 \underline{-225} \\
 0 \\
 \underline{}
 \end{array}$$

\therefore The greatest number of 4-digit = 9975

5. Number of people visited the museum = 550250

Number of days = 250

Number of people on an average visited the museum
in one day = $550250 \div 250$

\therefore 2201 people on an average visited the museum in
one day.

$$\begin{array}{r}
 2201 \\
 250 \overline{) 550250} \\
 \underline{-500} \\
 502 \\
 \underline{-500} \\
 250 \\
 \underline{-250} \\
 0 \\
 \underline{}
 \end{array}$$

6. 360 trucks carry of weight = 1214640 kg
 One truck carry of weight = $1214640 \div 360$
 = 3374 kg

$$\begin{array}{r} 3374 \\ 360 \overline{) 1214640} \\ \underline{-1080} \\ 1346 \\ \underline{-1080} \\ 2664 \\ \underline{-2520} \\ 1440 \\ \underline{-1440} \\ 0 \end{array}$$

7. A factory produces toy cars = 70610
 Toy cars to be packed in boxes = 46
 The number of toy cars put in each box = $70610 \div 46$

$$\begin{array}{r} 1535 \\ 46 \overline{) 70610} \\ \underline{-46} \\ 246 \\ \underline{-230} \\ 161 \\ \underline{-138} \\ 230 \\ \underline{-230} \\ 0 \end{array}$$

\therefore The number of toy cars put in each box = 1535

8. The product of two number = 807650
 One number = 2785
 The other number = $807650 \div 2785$
 = 290

$$\begin{array}{r} 290 \\ 2785 \overline{) 807650} \\ \underline{-5570} \\ 25065 \\ \underline{-25065} \\ 00 \end{array}$$



Exercise 3E

1. Simplify the following :

(a) $25 + 21 \div 7$

= 25 + 3

= 28

(b) $36 + 18 \div 18 \times 1 - 5$

= $36 + 1 \times 1 - 5$

= $37 - 5$

= 32

$$\begin{aligned}
 \text{(c)} \quad 46 - 36 \div 3 \times 8 + 75 \\
 &= 46 - 12 \times 8 + 75 \\
 &= 46 - 96 + 75 \\
 &= 121 - 96 \\
 &= 25
 \end{aligned}$$

$$\begin{aligned}
 \text{(d)} \quad 90 - 56 \div 8 + 12 \times 2 \\
 &= 90 - 7 + 12 \times 2 \\
 &= 90 - 7 + 24 \\
 &= 114 - 7 \\
 &= 107
 \end{aligned}$$

2. Simplify the following :

$$\begin{aligned}
 \text{(a)} \quad (14 \times 36) \times 50 &= 504 \times 50 \\
 &= 25200
 \end{aligned}$$

$$\begin{aligned}
 \text{(b)} \quad 2500 \div (90 - 40) &= 2500 \div 50 \\
 &= 50
 \end{aligned}$$

$$\begin{aligned}
 \text{(c)} \quad (72 \times 168) \div 21 \text{ of } 12 \\
 &= (72 \times 168) \div 252 \\
 &= 12096 \div 252 \\
 &= 48
 \end{aligned}$$

$$\begin{aligned}
 \text{(d)} \quad 40 \div 5 + 3 \times 6 - 2 \\
 &= 8 + 3 \times 6 - 2 \\
 &= 8 + 18 - 2 \\
 &= 26 - 2 \\
 &= 24
 \end{aligned}$$

3. Simplify the following :

$$\begin{aligned}
 \text{(a)} \quad 14 \times \{29 - (15 - 14)\} &= 14 \times \{29 - 1\} \\
 &= 14 \times 28 \\
 &= 392
 \end{aligned}$$

$$\begin{aligned}
 \text{(b)} \quad (600 \div 12) - \{(13 \times 9) \div (43 - 30)\} &= 50 - \{117 \div 13\} \\
 &= 50 - 9 \\
 &= 41
 \end{aligned}$$

$$\begin{aligned}
 \text{(c)} \quad 120 \div \{10 \times (3 \times 6 \div 3)\} &= 120 \div \{10 \times (18 \div 3)\} \\
 &= 120 \div \{10 \times 6\} \\
 &= 120 \div 60 \\
 &= 2
 \end{aligned}$$

$$\begin{aligned}
 \text{(d)} \quad \{17 \times (112 - 78)\} \div 289 &= \{17 \times 34\} \div 289 \\
 &= 578 \div 289 \\
 &= 2
 \end{aligned}$$

4. State 'True' or 'False' :

$$\begin{aligned}
 \text{(a)} \quad 56 \div (4 \times 2) &= (56 \div 4) \times 2 \\
 56 \div 8 &= 14 \times 2 \\
 7 &\neq 28
 \end{aligned}$$

\therefore Answer is False.

$$\begin{aligned}
 \text{(b)} \quad 75 \times 24 \div 12 &= 75 \times (24 \div 12) \\
 75 \times 2 &= 75 \times 2 \\
 150 &= 150
 \end{aligned}$$

\therefore Answer is True.

$$(c) (115 \times 28) \div 7 = 115 \text{ of } (28 \div 7)$$

$$3220 \div 7 = 115 \times 4$$

$$460 = 460$$

\therefore Answer is True.

5. On rounding off to the nearest thousands,

43871 is rounded off to 44000

75234 is rounded off to 75000

8009 is rounded off to 8000

Estimate sum = $44000 + 75000 + 8000$

$$= 127000$$

Actual sum = $43871 + 75234 + 8009$

$$= 127114$$

Difference between actual sum and estimate sum = $127114 - 127000$

$$= 114$$

6. Number of boys in a school = 3176

Number of girls in a school = 3512

On rounding off to the nearest hundreds,

3176 is rounded off to 3200

3512 is rounded off to 3500

Estimate difference = $3500 - 3200$

$$= 300$$

\therefore 300 girls are more in a school.

7. $58 \times 96 = 5568$

\therefore Rounding off to the nearest ten,

5568 is rounded off to = 5570

$$\begin{array}{r} 58 \\ \times 96 \\ \hline 348 \\ 5220 \\ \hline 5568 \end{array}$$

8. A book contain pages = 1314

Number of read pages in a day = 18

Number of days read the book = $1314 \div 18$

$$= 73 \text{ days}$$

73 is rounded off to = 70

$$\begin{array}{r} 73 \\ 18 \overline{) 1314} \\ \underline{-126} \\ 54 \\ \underline{-54} \\ 0 \end{array}$$



Exercise 3F

- Number of schools in a city = 383

Each school sent students for a competition = 256

Number of students = 383×256

$$\begin{array}{r} 383 \\ \times 256 \\ \hline 2298 \\ 19150 \\ 76600 \\ \hline 98048 \end{array}$$
- Number of votes for winning member = 472914

The winning member won by votes = 675

Number of votes for another member = $472914 - 675$

$$\begin{array}{r} 472914 \\ - 675 \\ \hline 472239 \end{array}$$

= 472239
- Number of female voters in a state = 1,34,413,615

Number of male voters in a state = 1,35,78,465

$$\begin{array}{r} 134413615 \\ + 13578465 \\ \hline 147992080 \end{array}$$

Total number of voters in a state = $134413615 + 13578465$

= 147992080
- The difference of two number = 3,25,066

The smaller number = 98,437

The largest number = $325066 - 98437$

$$\begin{array}{r} 325066 \\ - 98437 \\ \hline 226629 \end{array}$$

= 226629
- Number of pages a holy book = 1295

Number of lines in each page = 123

Number of lines in a holy book = 1295×123

$$\begin{array}{r} 1295 \\ \times 123 \\ \hline 3885 \\ 25900 \\ 129500 \\ \hline 159285 \end{array}$$

= 159285

Number of letter in each line = 38

Number of letters in a holy book = 159285×38

$$\begin{array}{r} 159285 \\ \times 38 \\ \hline 1274280 \\ 4778550 \\ \hline 6052830 \end{array}$$

= 6052830
- Find the dividend when :**

(a) Quotient = 209, Divisor = 245 and Remainder = 121

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$= 245 \times 209 + 121$$

$$= 51205 + 121$$

$$= 51326$$

$$(b) \text{ Quotient} = 385, \text{ Divisor} = 1072 \text{ and Remainder} = 0$$

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$= 1072 \times 385 + 0$$

$$= 412720 + 0$$

$$= 412720$$

$$7. \text{ The cost of 125 mobile sets} = ₹ 31,94,375$$

$$\text{The cost of one mobile sets} = ₹ 3194375 \div 125$$

$$= ₹ 25555$$

$$\begin{array}{r} 25555 \\ 125 \overline{) 3194375} \\ \underline{-250} \\ 694 \\ \underline{-625} \\ 693 \\ \underline{-625} \\ 687 \\ \underline{-625} \\ 625 \\ \underline{-625} \\ 0 \end{array}$$

$$8. \text{ A stadium has a capacity of people} = 52650$$

$$\text{Number of people can sit in each row} = 975$$

$$\text{Total rows of seats in the stadium} = 52650 \div 975$$

$$= 54$$

$$\begin{array}{r} 54 \\ 975 \overline{) 52650} \\ \underline{-4875} \\ 3900 \\ \underline{-3900} \\ 00 \end{array}$$



Maths Fun

Problem-solving, Observation

Rishi has some chits with numbers written on them.

∴ Match the numbers and the questions,

$$24,23,093 \div 37 = 65,489$$

$$5,55,555 + 4,44,444 = 9,99,999$$

$$94 \times 3650 = 3,43,100$$

$$20,000 \times 5 = 1,00,000$$

$$1,00,001 \div 1 = 1,00,001$$

$$98,74,631 - 5,86,321 = 92,88,310$$

Apply Your Learning

Critical and Logical thinking, Problem-solving

Rani had a packet of candies.

Rani ate candies = 5

Rani gave the remaining candies to girls = 10

First girl took candy = 1, Second girl took candies = 3,

Third girl took candies = 5, Fourth girl took candies = 7,

Fifth girl took candies = 9, Sixth girl took candies = 11,

Seventh girl took candies = 13, Eighth girl took candies = 15,

Ninth girl took candies = 17, Tenth girl took candies = 19

Total candies = $1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19 + 5$

= 105 candies

Think, Solve and Learn

Problem-solving, Applicative thinking

Riya has vases of flowers = 7

Number of flowers in the vases = 50

Number of yellow roses in each of some vases = 10

Number of pink carnations in each of the other vases = 5

Yellow roses = $3 \times 10 = 30$

Pink carnations = $4 \times 5 = 20$

Number of flowers = $30 + 20 = 50$

Number of vases = $3 + 4 = 7$



Multiples and Factors



Exercise 4A

1. Fill in the blanks :

(a) $3 \times 2 \times 5 = 30$

So, 30 is a multiple of **3**, **2**, and **5** apart from 1 and 30 itself.

(b) The first two common multiples of 3 and 6 are **12** and **18**.

(c) $63 = 9 \times 7$, So 7 and 9 are **factors** of 63.

2. (a) Write the first five multiples of 9.

The first five multiples of 9 ➡ $9 \times 1 = 9$; $9 \times 2 = 18$; $9 \times 3 = 27$;
 $9 \times 4 = 36$; $9 \times 5 = 45$

(b) Write the four largest 2-digit multiples of 6.

The four largest 2-digit multiples of 6 ➡ 78, 84, 90, 96

(c) Write the multiples of 13 that are between 100 and 150.

The multiples = 104, 117, 130, 143

3. Tick the multiples of the coloured numbers :

(a) 9 ➡ 18✓ 28 36✓ 46 54✓

(b) 13 ➡ 26✓ 39✓ 53 66 81

4. Write the first two common multiples of :

(a) 6 and 3

Multiples of 6 : 6 (12) (18) 24

Multiples of 3 : 3 6 9 (12) 15 (18) 21

12 and 18 are multiples of 6 and 3. They are common multiples of 6 and 3.

(b) 2, 4 and 6

Multiples of 2 : 2 4 6 8 10 (12) 14 16 18 20 22 (24)

Multiples of 4 : 4 8 (12) 16 20 (24) 28

Multiples of 6 : 6 (12) 18 (24) 30

12 and 24 are multiples of 2, 4 and 6. They are common multiples of 2, 4 and 6.

5. Write the first three common multiples of :

(a) 10 and 15

Multiples of 10 : 10 20 (30) 40 50 (60) 70 80 (90) 100

Multiples of 15 : 15 (30) 45 (60) 75 (90) 105

30, 60 and 90 are multiples of 10 and 15. They are common multiples of 10 and 15.

(b) 2, 3 and 6

Multiples of 2 : 2 4 6 8 10 (12) 14 16 (18) 20 22 (24)

Multiples of 3 : 3 6 9 (12) 15 (18) 21 (24) 27

Multiples of 6 : 6 (12) 18 (24) 30

12, 18 and 24 are multiples of 2, 3 and 6. They are common multiples of 2, 3 and 6.

6. Write the even numbers between 77 and 99.

The even numbers = 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98

7. Write the last five odd numbers that are less than 800.

The last five odd numbers = 791, 793, 795, 797, 799

8. Write the first four 4-digit even numbers.

The first four 4-digit even numbers = 1000, 1002, 1004, 1006



Exercise 4B

1. Write all the factors of each of the following :

(a) $8 = 2 \times 2 \times 2$

(b) $20 = 2 \times 2 \times 5$

(c) $63 = 3 \times 3 \times 7$

(d) $54 = 2 \times 3 \times 3 \times 3$

2. (a) Tick the factors of 36 among the following :

(2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

- (b) Tick the factors of 84 among the following :

(2) (3) (4) (6) (7) (8) (9) (12) (13) (14) (16)

3. Write three factors of the following numbers, other than 1 and the number itself.

(a) $66 = 2, 3, 6$

(b) $120 = 2, 3, 4$

(c) $240 = 2, 3, 4$



Exercise 4C

1. Encircle the prime number :

(a) (2) 4 17 (1)

(b) 8 (11) 30 (701)

(c) (3) (7) 14 21

2. Encircle the composite number :

(a) 0 (25) 19 17

(b) 17 (94) (88) (51)

(c) $\textcircled{40}$ 37 61 $\textcircled{93}$

3. (a) Write the first six prime numbers smaller than 20.

The first six prime numbers = 2, 3, 5, 7, 11, 13

- (b) Write the first six composite numbers greater than 20.

The first six composite numbers = 21, 22, 24, 25, 26, 27

4. Are the following pairs of numbers co-prime number?

(a) 35, 99

Factors of 35 are 1, 5, 7 and 35.

Factors of 99 are 1, 3, 9, 11, 33 and 99.

In the given set of numbers, there is no common factor except 1.

So, 35 and 99 are co-prime numbers.

(b) 83, 120

Factors of 83 are 1 and 83.

Factors of 120 are 1, 2, 3, 4, 6, 8, 10, 12, 20, 30, 40, 60 and 120.

In the given set of numbers, there is no common factor except 1.

So, 83 and 120 are co-prime numbers.

(c) 25, 36

Factors of 25 are 1, 5 and 25.

Factors of 36 are 1, 2, 3, 4, 6, 9, 12, 18 and 36.

In the given set of numbers, there is no common factor except 1.

So, 25 and 36 are co-prime numbers.

5. Write the prime factorisation using division method :

(a) 216

2	216
2	108
2	54
3	27
3	9
3	3
	1

$$\therefore 216 = 2 \times 2 \times 2 \times 3 \times 3 \times 3$$

(b) 450

2	450
3	225
3	75
5	25
5	5
	1

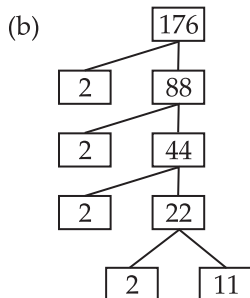
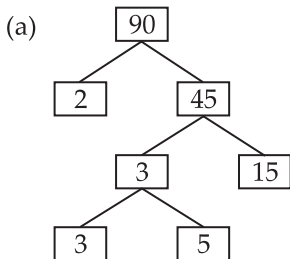
$$\therefore 450 = 2 \times 3 \times 3 \times 5 \times 5$$

(c) 800

2	800
2	400
2	200
2	100
2	50
5	25
5	5
	1

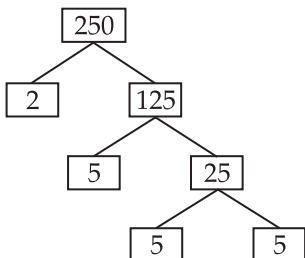
$$\therefore 800 = 2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 5$$

6. Write the prime factorisation in factor tree :

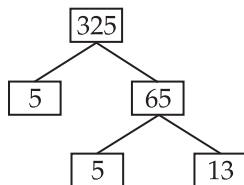


7. Find prime factors by factor tree method :

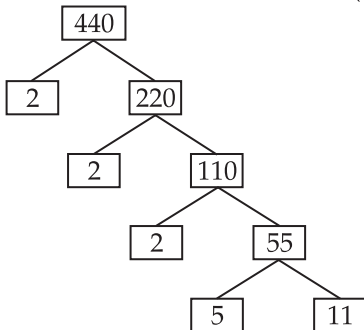
(a) 250



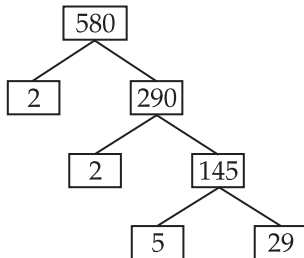
(b) 325



(c) 440



(d) 580





Exercise 4D

1. Find the numbers that are divisible by :

- (a) 39, 92, 120, 6016 **2**

A number is divisible by 2, if the last digit is even.

\therefore Divisible by 2 = 92, 120, 6016

- (b) 90, 48, 105, 6442 **3**

A number is divisible by 3, if the sum of the digits is divisible by 3.

\therefore Divisible by 3 = 90, 48, 105

- (c) 185, 2670, 3004, 3400 **10**

A number is divisible by 10, if the last digit of the number is 0.

\therefore Divisible by 10 = 2670, 3400

- (d) 132, 320, 4710, 2500 **5**

If the number have 0 or 5 at last, it will be divisible by 5.

\therefore Divisible by 5 = 320, 4710, 2500

- (e) 801, 719, 3231, 1008 **9**

A number is divisible by 9, if the sum of the digits is divisible by 9.

\therefore Divisible by 9 = 801, 3231, 1008

2. Find the numbers that are divisible by the first number :

- (a) **4** 4102, 6112, 5208, 1120

A number is divisible by 4, if the number made by two last digit of the number is divisible by 4.

\therefore Divisible by 4 = 6112, 5208, 1120

- (b) **6** 45, 504, 1230, 47322

The number is divisible by 6, if it is divisible by 2 as well as 3.

\therefore Divisible by 6 = 504, 1230, 47322

- (c) **8** 19824, 17808, 360, 11297

A number is divisible by 8, if the number made by last three digit of that number is divisible by 8.

\therefore Divisible by 8 = 19824, 17808, 360

- (d) **7** 434, 903, 1016, 616

To find the divisibility 7, just double the last digit of the number and subtract it from the rest of the numbers. If the difference is divisible by 7, the number is divisible by 7.

\therefore Divisible by 7 = 434, 903, 616

3. 244 is divisible by 2 but not divisible by 6.
 7214 is divisible by 2 but not divisible by 6.
 6528 is divisible by 2 and 6.
4. 644 is divisible by 4 but not divisible by 8.
 4216 is divisible by 4 and 8.
 55200 is divisible by 4 and 8.

5. Fill in the smallest digit to make the number divisible by 3.

(a) 60

$$\Rightarrow 60 + \boxed{3} = \underline{63}$$

$$63 \div 3 = 21$$

(b) 325

$$\Rightarrow 325 + \boxed{2} = \underline{327}$$

$$327 \div 3 = 109$$

(c) 56 32

$$\Rightarrow 56 + \boxed{2} + 32 = \underline{90}$$

$$90 \div 3 = 30$$

(d) 104 2

$$\Rightarrow 104 + \boxed{2} + 2 = \underline{108}$$

$$108 \div 3 = 36$$

6. Fill in the greatest digit to make the number divisible by 4.

(a) 23

$$\Rightarrow 23 + \boxed{5} = \underline{28}$$

$$28 \div 4 = 7$$

(b) 324

$$\Rightarrow 324 + \boxed{0} = \underline{324}$$

$$324 \div 4 = 81$$

(c) 43 2

$$\Rightarrow 43 + \boxed{3} + 2 = \underline{48}$$

$$48 \div 4 = 12$$

(d) 628

$$\Rightarrow \boxed{4} + 628 = \underline{632}$$

$$632 \div 4 = 158$$

7. Check the divisibility by 2, 4, 6 and 8 for :

(a) 180

\therefore 180 is divisible by 2, 4 and 6.

(b) 120

\therefore 120 is divisible by 2, 4, 6 and 8.

(c) 240

\therefore 240 is divisible by 2, 4, 6 and 8.

(d) 360

\therefore 360 is divisible by 2, 4, 6 and 8.

8. Check the divisibility by 3, 5, 7 and 9 for :

(a) 63

\therefore 63 is divisible by 3, 5 and 9.

(b) 324

\therefore 324 is divisible by 3 and 9.

(c) 630

\therefore 630 is divisible by 3, 5, 7 and 9.

(d) 105

\therefore 105 is divisible by 3, 5 and 7.



Exercise 4E

1. Find the HCF of the following numbers :

(a) 16 and 24

$$\begin{aligned}\text{We know } 16 &= (2) \times (2) \times (2) \times 2 \\ 24 &= (2) \times (2) \times (2) \times 3\end{aligned}$$

So, common factors are $2 \times 2 \times 2$.

So, HCF is 8.

(b) 20 and 30

$$\begin{aligned}\text{We know } 20 &= (2) \times 2 \times (5) \\ 30 &= (2) \times 3 \times (5)\end{aligned}$$

So, common factors are 2×5 .

So, HCF is 10.

(c) 33 and 44

$$\begin{aligned}\text{We know } 33 &= 3 \times \boxed{11} \\ 44 &= 2 \times 2 \times \boxed{11}\end{aligned}$$

So, common factors are 11.

So, HCF is 11.

(d) 3 and 6

$$\begin{aligned}\text{We know } 3 &= 1 \times (3) \\ 6 &= 2 \times (3)\end{aligned}$$

So, common factors are 3.

So, HCF is 3.

2. Find the HCF by prime factorisation :

(a) 64 and 80

$$\text{So, } 64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$80 = 2 \times 2 \times 2 \times 2 \times 5$$

$$\begin{aligned} \text{The common factors are} &= 2 \times 2 \times 2 \\ &= 8 \end{aligned}$$

$$\therefore \text{HCF} = 8$$

2	64
2	32
2	16
2	8
2	4
2	2
	1

2	80
2	40
2	20
2	10
5	5
	1

(b) 72 and 126

$$\text{So, } 72 = 2 \times 2 \times 2 \times 3 \times 3$$

$$126 = 2 \times 3 \times 3 \times 7$$

$$\begin{aligned} \text{The common factors are} &= 2 \times 3 \times 3 \\ &= 18 \end{aligned}$$

$$\therefore \text{HCF} = 18$$

2	72
2	36
2	18
3	9
3	3
	1

2	126
3	63
3	21
7	7
	1

(c) 136 and 208

$$\text{So, } 136 = 2 \times 2 \times 2 \times 17$$

$$208 = 2 \times 2 \times 2 \times 2 \times 13$$

$$\begin{aligned} \text{The common factors are} &= 2 \times 2 \times 2 \\ &= 8 \end{aligned}$$

$$\therefore \text{HCF} = 8$$

2	136
2	68
2	34
17	17
	1

2	208
2	104
2	52
2	26
13	13
	1

(d) 54 and 114

$$\text{So, } 54 = 2 \times 3 \times 3 \times 3$$

$$114 = 2 \times 3 \times 19$$

$$\text{The common factors are} = 2 \times 3 = 6$$

$$\therefore \text{HCF} = 6$$

2	54
3	27
3	9
3	3
	1

2	114
3	57
19	19
	1

(e) 40, 80 and 96

$$\text{So, } 40 = 2 \times 2 \times 2 \times 5$$

$$80 = 2 \times 2 \times 2 \times 2 \times 5$$

$$96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$$

$$\text{The common factors are}$$

$$= 2 \times 2 \times 2 = 8$$

$$\therefore \text{HCF} = 8$$

2	40
2	20
2	10
5	5
	1

2	80
2	40
2	20
2	10
5	5
	1

2	96
2	48
2	24
2	12
2	6
3	3
	1

(f) 130, 195 and 390

So, $130 = 2 \times 5 \times 13$

$195 = 3 \times 5 \times 13$

$390 = 2 \times 3 \times 5 \times 13$

$$\begin{array}{r|l} 2 & 130 \\ \hline 5 & 65 \\ \hline 13 & 13 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 3 & 195 \\ \hline 5 & 65 \\ \hline 13 & 13 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 390 \\ \hline 3 & 195 \\ \hline 5 & 65 \\ \hline 13 & 13 \\ \hline & 1 \end{array}$$

The common factors are

$= 13 \times 5 = 65$

$\therefore \text{HCF} = 65$

3. Find the HCF by multiplication tables :

(a) 54 and 114

$54 = 1 \times 54$

$= 2 \times 27$

$= 3 \times 18$

$= 6 \times 9$

and

$114 = 1 \times 114$

$= 2 \times 57$

$= 3 \times 38$

$= 6 \times 19$

\therefore Factors of 54 are 1, 2, 3, 6, 9, 18, 27 and 54.

And 114 are 1, 2, 3, 6, 19, 38, 57 and 114.

\therefore Highest common factor is 6.

\therefore HCF of 54 and 114 is 6.

(b) 24 and 36

$24 = 1 \times 24$

$= 2 \times 12$

$= 3 \times 8$

$= 4 \times 6$

and

$36 = 1 \times 36$

$= 2 \times 18$

$= 3 \times 12$

$= 4 \times 9$

$= 6 \times 6$

\therefore Factors of 24 are 1, 2, 3, 4, 6, 8, 12 and 24.

And 36 are 1, 2, 3, 4, 6, 9, 12, 18 and 36.

\therefore Highest common factor is 12.

\therefore HCF of 24 and 36 is 12.

(c) 15 and 27

$15 = 1 \times 15$

$= 3 \times 5$

and

$27 = 1 \times 27$

$= 3 \times 9$

\therefore Factors of 15 are 1, 3, 5 and 15.

And 27 are 1, 3, 9 and 27.

\therefore Highest common factor is 3.

\therefore HCF of 15 and 27 is 3.

(d) 12 and 16

$$\begin{array}{lcl} 12 & = 1 \times 12 & \text{and} \quad 16 = 1 \times 16 \\ & = 2 \times 6 & \\ & = 3 \times 4 & \\ & & \quad \quad \quad 16 = 2 \times 8 \\ & & \quad \quad \quad = 4 \times 4 \end{array}$$

\therefore Factors of 12 are 1, 2, 3, 4, 6 and 12.

And 16 are 1, 2, 4, 8 and 16.

\therefore Highest common factor is 4.

\therefore HCF of 12 and 16 is 4.

4. Find the HCF by long division methods :

(a) 42 and 63

Long Division Method :

$$\begin{array}{r} 42 \overline{) 63} 1 \\ \underline{-42} \\ 21 \overline{) 42} 2 \\ \underline{-42} \\ \times \end{array}$$

\therefore Last divisor is HCF.

\therefore HCF is 21.

(c) 105 and 230

Long Division Method :

$$\begin{array}{r} 105 \overline{) 230} 2 \\ \underline{-210} \\ 20 \overline{) 105} 5 \\ \underline{-100} \\ 5 \overline{) 20} 4 \\ \underline{-20} \\ \times \end{array}$$

\therefore Last divisor is HCF.

\therefore HCF is 5 .

(b) 84 and 120

Long Division Method :

$$\begin{array}{r} 84 \overline{) 120} 1 \\ \underline{-84} \\ 36 \overline{) 84} 2 \\ \underline{-72} \\ 12 \overline{) 36} 3 \\ \underline{-36} \\ \times \end{array}$$

\therefore Last divisor is HCF.

\therefore HCF is 12.

(d) 132 and 154

Long Division Method :

$$\begin{array}{r} 132 \overline{) 154} 1 \\ \underline{-132} \\ 22 \overline{) 132} 6 \\ \underline{-132} \\ \times \end{array}$$

\therefore Last divisor is HCF.

\therefore HCF is 22.

(e) 25 and 36

Long Division Method :

$$\begin{array}{r} 25 \overline{) 36} 1 \\ \underline{-25} \\ 11 \overline{) 25} 2 \\ \underline{-22} \\ 3 \overline{) 11} 3 \\ \underline{-9} \\ 2 \overline{) 3} 1 \\ \underline{-2} \\ 1 \overline{) 2} 2 \\ \underline{-2} \\ \times \end{array}$$

\therefore Last divisor is HCF.

\therefore HCF is 2.

(f) 30 and 75

Long Division Method :

$$\begin{array}{r} 30 \overline{) 75} 2 \\ \underline{-60} \\ 15 \overline{) 30} 2 \\ \underline{-30} \\ \times \end{array}$$

\therefore Last divisor is HCF.

\therefore HCF is 15.

5. Find the HCF of the numbers by finding factors :

(a) 99, 33

3	99, 33
3	33, 11
11	11, 11
	1, 1

\therefore HCF of 99 and 33
is $3 \times 11 = 33$

(b) 31, 37, 33

3	31, 37, 33
31	31, 37, 11
37	1, 37, 11
11	1, 1, 11
	1, 1, 1

\therefore HCF of 31, 37 and 33 is 1.

(c) 45, 65, 75

3	45, 65, 75
3	15, 65, 25
5	5, 65, 25
5	1, 13, 5
13	1, 13, 1
	1, 1, 1

\therefore HCF of 45, 65 and 75 is 5.

(d) 28, 36

2	28, 36
2	14, 18
3	7, 9
3	7, 3
7	7, 1
	1, 1

\therefore HCF of 28 and 36 is 4.

(e) 24, 32, 56

2	24, 32, 56
2	12, 16, 28
2	6, 8, 14
2	3, 4, 7
2	3, 2, 7
3	3, 1, 7
7	1, 1, 7
	1, 1, 1

∴ HCF of 24, 32, 56 is 8.

(f) 64, 74, 84

2	64, 74, 84
2	32, 37, 42
2	16, 37, 21
2	8, 37, 21
2	4, 37, 21
2	2, 37, 21
3	1, 37, 21
7	1, 37, 7
37	1, 37, 1
	1, 1, 1

∴ HCF of 64, 74 and 84 is 2.



Exercise 4F

1. (a) 18 and 24

$$\begin{array}{r}
 18 \overline{) 24} 1 \\
 \underline{-18} \\
 6 \overline{) 18} 3 \\
 \underline{-18} \\
 \times
 \end{array}$$

∴ The largest number = 6

(b) 96 and 108

$$\begin{array}{r}
 96 \overline{) 108} 1 \\
 \underline{-96} \\
 12 \overline{) 96} 8 \\
 \underline{-96} \\
 \times
 \end{array}$$

∴ The greatest number = 12

2. (a) 165 divided by the number leaves 5 as remainder.

So, the number divides $165 - 5 = 160$

245 divided by the number leaves 5 as remainder.

So, the number divides $245 - 5 = 240$

325 divided by the number leaves 5 as remainder.

So, the number divides $325 - 5 = 320$

The greatest number that will divide 160, 240 and 320 exactly is their HCF.

2	160
2	80
2	40
2	20
2	10
5	5
	1

2	240
2	120
2	60
3	30
3	15
3	5
	1

2	320
2	160
2	80
2	40
2	20
2	10
5	5
	1

$$\therefore 160 = 2 \times 2 \times 2 \times 2 \times 2 \times 5$$

$$\therefore 240 = 2 \times 2 \times 2 \times 2 \times 3 \times 5$$

$$\therefore 320 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 5$$

The HCF of 160, 240 and 320 is $2 \times 2 \times 2 \times 2 \times 5 = 80$

So, the required number is 80.

- (b) 47 divided by the number leaves 5 as remainder.

So, the number divides $47 - 5 = 42$

77 divided by the number leaves 5 as remainder.

So, the number divides $77 - 5 = 72$

89 divided by the number leaves 5 as remainder.

So, the number divides $89 - 5 = 84$

The greatest number that will divide 42, 72 and 84 exactly is their HCF.

2	42
3	21
7	7
	1

2	72
2	36
2	18
3	9
3	3
	1

2	84
2	42
3	21
7	7
	1

$$\therefore 42 = 2 \times 3 \times 7$$

$$\therefore 72 = 2 \times 2 \times 2 \times 3 \times 3$$

$$\therefore 84 = 2 \times 2 \times 3 \times 7$$

The HCF of 42, 72 and 84 is $2 \times 3 = 6$

So, the required number is 6.

3. (a) ₹ 5 divided by the number leaves ₹ 2 as remainder.

So, the number divides ₹ 5 - ₹ 2 = ₹ 3

₹ 8 divided by the number leaves ₹ 2 as remainder.

So, the number divides ₹ 8 - ₹ 2 = ₹ 6

₹ 11 divided by the number leaves ₹ 2 as remainder.

So, the number divides ₹ 11 – ₹ 2 = ₹ 9

The greatest number that will divide ₹ 3, ₹ 6 and ₹ 9 exactly is their HCF.

$$\begin{array}{r|l} 3 & 3 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 6 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$\therefore 3 = 1 \times 3$$

$$\therefore 6 = 2 \times 3$$

$$\therefore 9 = 3 \times 3$$

The HCF of 3, 6 and 9 is 3.

So, the required number is 3.

(b) Monika is the crayons costing maximum.

4. 180 mL and 270 mL

Long Division Method :

$$\begin{array}{r} 180 \overline{) 270} (1 \\ \underline{-180} \\ 90 \overline{) 180} (2 \\ \underline{-180} \\ \hline \times \end{array}$$

\therefore HCF is 90.

\therefore The greatest capacity of a measuring jar = 90 mL

5. 54 kg and 72 kg

Long Division Method :

$$\begin{array}{r} 54 \overline{) 72} (1 \\ \underline{-54} \\ 18 \overline{) 54} (3 \\ \underline{-54} \\ \hline \times \end{array}$$

\therefore HCF is 18.

\therefore The greatest weight = 18 kg

6. Flower pots in a garden = 36, 48 and 60.

$$\begin{array}{r|l} 2 & 36 \\ \hline 2 & 18 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 48 \\ \hline 2 & 24 \\ \hline 2 & 12 \\ \hline 2 & 6 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 2 & 60 \\ \hline 2 & 30 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

$$\therefore 36 = 2 \times 2 \times 3 \times 3$$

$$\therefore 48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$\therefore 60 = 2 \times 2 \times 3 \times 5$$

The HCF of 36, 48 and 60 is $2 \times 2 \times 3 = 12$

\therefore Maximum number of flower pots in a single row = 12

7. (a) 27 divided by the number leaves 3 as remainder.

So, the number divides $27 - 3 = 24$

41 divided by the number leaves 5 as remainder.

So, the number divides $41 - 5 = 36$

50 divided by the number leaves 2 as remainder.

So, the number divides $50 - 2 = 48$

The greatest number that will divide 24, 36 and 48 exactly is their HCF.

2	24
2	12
2	6
3	3
	1

2	36
2	18
3	9
3	3
	1

2	48
2	24
2	12
2	6
3	3
	1

$\therefore 24 = 2 \times 2 \times 2 \times 3 \quad \therefore 36 = 2 \times 2 \times 3 \times 3 \quad \therefore 48 = 2 \times 2 \times 2 \times 2 \times 3$

The HCF of 24, 36 and 48 is $2 \times 2 \times 3 = 12$

So, the required number is 12.

- (b) 57 divided by the number leaves 7 as remainder.

So, the number divides $57 - 7 = 50$

133 divided by the number leaves 8 as remainder.

So, the number divides $133 - 8 = 125$

384 divided by the number leaves 9 as remainder.

So, the number divides $384 - 9 = 375$

The greatest number that will divide 50, 125 and 375 exactly is their HCF.

2	50
5	25
5	5
	1

5	125
5	25
5	5
	1

3	375
5	125
5	25
5	5
	1

$\therefore 50 = 2 \times 5 \times 5 \quad \therefore 125 = 5 \times 5 \times 5 \quad \therefore 375 = 3 \times 5 \times 5 \times 5$

The HCF of 50, 125 and 375 is $5 \times 5 = 25$.

So, the required number is 25.



Exercise 4G

1. Find the LCM using prime factorisation :

(a) 90, 15, 20

2	90
3	45
3	15
5	5
	1

3	15
5	5
	1

2	20
2	10
5	5
	1

$$\therefore 90 = 2 \times 3 \times 3 \times 5$$

$$\therefore 15 = 3 \times 5$$

$$\therefore 20 = 2 \times 2 \times 5$$

The LCM of 90, 15 and 20 is $2 \times 2 \times 3 \times 3 \times 5 = 180$

(b) 33, 22, 11

3	33
11	11
	1

2	22
11	11
	1

11	11
	1

$$\therefore 33 = 3 \times 11$$

$$\therefore 22 = 2 \times 11$$

$$\therefore 11 = 1 \times 11$$

The LCM of 33, 22 and 11 is $3 \times 2 \times 11 = 66$

(c) 120, 180, 280

2	120
2	60
2	30
3	15
5	5
	1

2	180
2	90
3	45
3	15
5	5
	1

2	280
2	140
2	70
5	35
7	7
	1

$$\therefore 120 = 2 \times 2 \times 2 \times 3 \times 5$$

$$\therefore 180 = 2 \times 2 \times 3 \times 3 \times 5$$

$$\therefore 280 = 2 \times 2 \times 2 \times 5 \times 7$$

The LCM of 120, 180 and 280 is $2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 7 = 2520$

(d) 60, 80, 180

2	60
2	30
3	15
5	5
	1

2	80
2	40
2	20
2	10
5	5
	1

2	180
2	90
3	45
3	15
5	5
	1

$$\therefore 60 = 2 \times 2 \times 3 \times 5$$

$$\therefore 80 = 2 \times 2 \times 2 \times 2 \times 5$$

$$\therefore 180 = 2 \times 2 \times 3 \times 3 \times 5$$

The LCM of 60, 80 and 180 is $2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 720$

(e) 18, 27

2	18
3	9
3	3
	1

3	27
3	9
3	3
	1

$$\therefore 18 = 2 \times 3 \times 3$$

$$\therefore 27 = 3 \times 3 \times 3$$

The LCM of 18 and 27 is $2 \times 3 \times 3 \times 3 = 54$

(f) 22, 44

2	22
11	11
	1

2	44
2	22
11	11
	1

$$\therefore 22 = 2 \times 11$$

$$\therefore 44 = 2 \times 2 \times 11$$

The LCM of 22 and 44 is $2 \times 2 \times 11 = 44$

(g) 24, 36

2	24
2	12
2	6
3	3
	1

2	36
2	18
3	9
3	3
	1

$$\therefore 24 = 2 \times 2 \times 2 \times 3$$

$$\therefore 36 = 2 \times 2 \times 3 \times 3$$

The LCM of 24 and 36 is $2 \times 2 \times 2 \times 3 \times 3 = 72$

(h) 60, 90

2	60
2	30
3	15
5	5
	1

2	90
3	45
3	15
5	5
	1

$$\therefore 60 = 2 \times 2 \times 3 \times 5$$

$$\therefore 90 = 2 \times 3 \times 3 \times 5$$

The LCM of 60 and 90 is $2 \times 2 \times 3 \times 3 \times 5 = 180$

2. Find the LCM using short division method :

(a) 11, 24, 33

2	11, 24, 33
2	11, 12, 33
2	11, 6, 33
3	11, 3, 33
11	11, 1, 11
	1, 1, 1

$$\therefore \text{LCM} = 2 \times 2 \times 2 \times 3 \times 11 \\ = 264$$

(b) 27, 54, 63

2	27, 54, 63
3	27, 27, 63
3	9, 9, 21
3	3, 3, 7
7	1, 1, 7
	1, 1, 1

$$\therefore \text{LCM} = 2 \times 3 \times 3 \times 3 \times 7 \\ = 378$$

(c) 75, 125, 150

2	75, 125, 150
3	75, 125, 75
5	25, 125, 25
5	5, 25, 5
5	1, 5, 1
	1, 1, 1

$$\therefore \text{LCM} = 2 \times 3 \times 5 \times 5 \times 5 \\ = 750$$

(d) 56, 140, 210

2	56, 140, 210
2	28, 70, 105
2	14, 35, 105
5	7, 35, 105
3	7, 7, 21
7	7, 7, 7
	1, 1, 1

$$\therefore \text{LCM} = 2 \times 2 \times 2 \times 5 \times 3 \times 7 \\ = 840$$

(e) 20, 65

2	20, 65
2	10, 65
5	5, 65
13	1, 13
	1, 1

$$\therefore \text{LCM} = 2 \times 2 \times 5 \times 13 \\ = 260$$

(f) 10, 18

2	10, 18
3	5, 9
3	5, 3
5	5, 1
	1, 1

$$\therefore \text{LCM} = 2 \times 3 \times 3 \times 5 \\ = 90$$

(g) 39, 78

3	39, 78
2	13, 26
13	13, 13
	1, 1

$$\therefore \text{LCM} = 3 \times 2 \times 13 = 78$$

(h) 21, 63

2	21, 63
3	7, 21
7	7, 7
	1, 1

$$\therefore \text{LCM} = 3 \times 3 \times 7 = 63$$

3. Find the LCM with the help of multiplication tables :

(a) 18, 27

Multiplication of 18 : 18 36 **54**

Multiplication of 27 : 27 **54**

\therefore The smallest common number = 54

\therefore The LCM of 18 and 27 is 54.

(b) 42, 70

Multiplication of 42 : 42 84 126 168 **210**

Multiplication of 70 : 70 140 **210**

\therefore The smallest common number = 210

\therefore The LCM of 42 and 70 is 210.

(c) 40, 32

Multiplication of 40 : 40 80 120 **160**

Multiplication of 32 : 32 64 96 128 **160**

\therefore The smallest common number = 160

\therefore The LCM of 40 and 32 is 160.

(d) 4, 8

Multiplication of 4 : 4 **8**

Multiplication of 8 : **8** 16

\therefore The smallest common number = 8

\therefore The LCM of 4 and 8 is 8.

(e) 9, 15

Multiplication of 9 : 9 18 27 36 **45**

Multiplication of 15 : 15 30 **45**

\therefore The smallest common number = 45

\therefore The LCM of 9 and 15 is 45.

(f) 12, 20

Multiplication of 12 : 12 24 36 48 **60**

Multiplication of 20 : 20 40 **60**

\therefore The smallest common number = 60

\therefore The LCM of 12 and 20 is 60.

4. Find the LCM of the numbers by inspection :

(a) 10, 15 and 5

We have to find the smallest common multiple that occurs in the tables of 10, 15 and 5.

\therefore 30 is the smallest multiple that occurs in the three tables.

\therefore The LCM of 10, 15 and 5 is 30.

(b) 8, 12 and 16

We have to find the smallest common multiple that occurs in the tables of 8, 12 and 16.

\therefore 48 is the smallest multiple that occurs in the three tables.

\therefore The LCM of 8, 12 and 16 is 48.

(c) 21, 14 and 42

We have to find the smallest common multiple that occurs in the tables of 21, 14 and 42.

\therefore 42 is the smallest multiple that occurs in the three tables.

\therefore The LCM of 21, 14 and 42 is 42.

(d) 10, 15 and 18

We have to find the smallest common multiple that occurs in the tables of 10, 15 and 18.

\therefore 90 is the smallest multiple that occurs in the three tables.

\therefore The LCM of 10, 15 and 18 is 90.

(e) 4, 12 and 18

We have to find the smallest common multiple that occurs in the tables of 4, 12 and 18.

\therefore 36 is the smallest multiple that occurs in the three tables.

\therefore The LCM of 4, 12 and 18 is 36.

(f) 3, 4 and 6

We have to find the smallest common multiple that occurs in the tables of 3, 4 and 6.

\therefore 12 is the smallest multiple that occurs in the three tables.

\therefore The LCM of 3, 4 and 6 is 12.



Exercise 4H

1. A certain number of fruits can be arranged in groups = 3, 4, 6 or 8

2	3, 4, 6, 8
2	3, 2, 3, 4
2	3, 1, 3, 2
3	3, 1, 3, 1
	1, 1, 1, 1

The LCM of 3, 4, 6 and 8 = $2 \times 2 \times 2 \times 3 = 24$

\therefore The number of fruits = 24

2. A slow trains and a fast trains start from a station from Bhopal.

\therefore The slow train stops at every third station.

\therefore The fast train stops at every fourth station.

At the fourth station, a man boards that fast train.

Trains change = $3 \times 4 = 12$

\therefore A man trains change is 12^{th} station.

3. 9 or 15

3	9
3	3
	1

3	15
5	5
	1

$\therefore 9 = 3 \times 3$

$\therefore 15 = 3 \times 5$

The LCM of 9 and 15 is $3 \times 3 \times 5 = 45$

So, the smallest number of chairs = 45

4. Tom and Jerry stand on the same carpet of a carpet area.

Tom start jumping to every third carpet in a row.

Jerry starts jumping to every second carpet in that row.

\therefore The LCM of 3 and 2 is 6.

Tom and Jerry on both land carpet = 6

5. The alarm on two clocks ring together once.

If one rings every 20 minutes and the other rings every 30 minutes.

LCM = $2 \times 2 \times 3 \times 5 = 60$

\therefore They will ring together again = 60 minutes

\therefore 60 minutes = 1 hour

2	20, 30
2	10, 15
3	5, 15
5	5, 5
	1, 1

6. First we will find the smallest number that is divisible by 36 and 54.

2	36
2	18
3	9
3	3
	1

2	54
3	27
3	9
3	3
	1

$$\therefore 36 = 2 \times 2 \times 3 \times 3$$

$$\therefore 54 = 2 \times 3 \times 3 \times 3$$

The LCM of 36 and 54 is $= 2 \times 2 \times 3 \times 3 \times 3 = 108$

108 is the smallest number that is divisible by 36 and 54.

So, the smallest number $= 108 + 5 = 113$

7. First we will find the smallest number that is divisible by 24, 48 and 64.

2	24
2	12
2	6
3	3
	1

2	48
2	24
2	12
2	6
3	3
	1

2	64
2	32
2	16
2	8
2	4
2	2
	1

$$\therefore 24 = 2 \times 2 \times 2 \times 3 \quad \therefore 48 = 2 \times 2 \times 2 \times 2 \times 3 \quad \therefore 64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

The LCM of 24, 48 and 64 is $= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 = 192$

192 is the smallest number that is divisible by 24, 48 and 64.

So, the smallest number $= 192 + 2 = 194$



Exercise 4I

1. LCM of two numbers = 504

HCF of two numbers = 18

One of the number = 126

LCM \times HCF = Product of Numbers

$$504 \times 18 = 126 \times 'A'$$

$$A = \frac{504 \times 18}{126} = \frac{9072}{126}$$

$$A = 72$$

So, the another number is 72.

2. LCM of two co-primes number = 156

One number = 13

LCM \times HCF = Product of Numbers

$$156 \times 1 = 13 \times 'A' \quad (\because \text{HCF of co-primes number} = 1)$$

$$A = \frac{156}{13}$$

$$A = 12$$

So, the another number is 12.

3. HCF of two numbers = 15

LCM of two numbers = 315

One of the number = 45

LCM \times HCF = Product of Numbers

$$315 \times 15 = 45 \times 'A'$$

$$A = \frac{315 \times 15}{45} = \frac{4725}{45}$$

$$A = 105$$

So, the another number is 105.

4. Product of two numbers = 3072

HCF of the numbers = 16

LCM \times HCF = Product of Numbers

$$\text{LCM} = \frac{\text{Product of Numbers}}{\text{HCF}}$$

$$\text{LCM} = \frac{3072}{16}$$

$$\text{LCM} = 192$$

So, the LCM of the number is 192.

5. A certain number of fruits can be arranged in groups = 3, 4, 6 or 8

$$\begin{array}{c|c} 3 & 3 \\ \hline & 1 \end{array}$$

$$\begin{array}{c|c} 2 & 4 \\ \hline 2 & 2 \\ \hline & 1 \end{array}$$

$$\begin{array}{c|c} 2 & 6 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$\begin{array}{c|c} 2 & 8 \\ \hline 2 & 4 \\ \hline 2 & 2 \\ \hline & 1 \end{array}$$

$$\therefore 3 = 3 \times 1$$

$$\therefore 4 = 2 \times 2$$

$$\therefore 6 = 2 \times 3$$

$$\therefore 8 = 2 \times 2 \times 2$$

The LCM of 3, 4, 6 and 8 is = $2 \times 2 \times 2 \times 2 \times 3 \times 3$
= 144

\therefore Number of fruits = 144

6. 24 and 56

First we will find the greatest number that is divisible by 24 and 56.

2	24
2	12
2	6
3	3
	1

2	56
2	28
2	14
7	7
	1

$$\therefore 24 = 2 \times 2 \times 2 \times 3$$

$$\therefore 56 = 2 \times 2 \times 2 \times 7$$

The LCM of 24 and 56 is $= 2 \times 2 \times 2 \times 3 \times 7 = 168$

$\therefore 168$ is the greatest number that is divisible by 24 and 56.

7. Product of two numbers = 2304

HCF of numbers = 24

$$\text{LCM} \times \text{HCF} = \text{Product of Numbers}$$

$$\text{LCM} = \frac{\text{Product of Numbers}}{\text{HCF}}$$

$$\text{LCM} = \frac{2304}{24} = 96$$

So, the LCM of the number is 96.



Maths Fun

Observation, Reflection, Conceptualisation

Do yourself.

Apply Your Learning

Critical and Logical thinking, Problem-solving

Number of guava trees = 21

Number of mango trees = 30

Number of orange trees = 35

First we will find the greatest number that is divisible by 21, 30 and 35.

3	21
7	7
	1

2	30
3	15
5	5
	1

5	35
7	7
	1

$$\therefore 21 = 3 \times 7$$

$$\therefore 30 = 2 \times 3 \times 5$$

$$\therefore 35 = 5 \times 7$$

The LCM of 21, 30 and 35 is $= 2 \times 3 \times 5 \times 7 = 210$

210 is the greatest number that is divisible by 21, 30 and 35.

So, the greatest number of rows = 210

Think, Solve and Learn

Problem-solving, Applicative thinking

Garima has bangles = 48

2	48
2	24
2	12
2	6
3	3
	1

$$\therefore 48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$\text{LCM of } 48 \text{ is } = 2 \times 2 \times 3 = 12$$

So, Number of groups of bangles = 12



Fractions



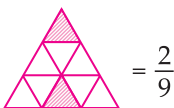
Exercise 5A

1. Fill in the blanks :

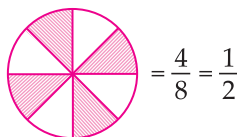
- Fraction with the same denominator are called **like** fractions.
- In fraction $\frac{7}{5}$, 5 is the **denominator** and 7 is the **numerator**.
- Fraction whose value is less than 1 is called **proper** fraction.
- If in a fraction, numerator is greater than denominator then it is an **improper** fraction.

2. Find the fraction shown by the shaded figure :

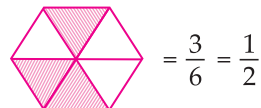
(a)



(b)



(c)



3. Fill in the blanks :

(a) $\frac{1}{4}$ of 36 = **9**

(b) $\frac{1}{7}$ of 63 = **9**

(c) $\frac{1}{2}$ of 64 = **32**

(d) $\frac{1}{3}$ of 93 = **31**

4. Circle of like fraction :

(a) $\left(\frac{9}{7}\right), \frac{11}{3}, \left(\frac{8}{7}\right), \frac{28}{5}$

(b) $\left(\frac{2}{5}\right), \frac{6}{7}, \frac{11}{9}, \left(\frac{4}{5}\right)$

5. Mark the proper and improper fractions and separate them :

$$\frac{4}{9}$$

$$\frac{5}{3}$$

$$\frac{17}{8}$$

$$\frac{85}{21}$$

$$\frac{17}{70}$$

$$\frac{121}{119}$$

Proper Fraction : $\frac{4}{9}, \frac{17}{70}$

Improper Fraction : $\frac{5}{3}, \frac{17}{8}, \frac{85}{21}, \frac{121}{119}$

6. Choose the mixed fraction :

(a) $4\frac{6}{13}, 12\frac{11}{23}, 13\frac{17}{21}$

(b) $12\frac{9}{13}$

7. Change into mixed fraction :

(a) $\frac{11}{4}$

In $11 \div 4$ quotient = 2

Remainder = 3

So, mixed fraction = $2\frac{3}{4}$

(c) $\frac{56}{13}$

In $56 \div 13$ quotient = 4

Remainder = 4

So, mixed fraction = $4\frac{4}{13}$

(e) $\frac{12}{7}$

In $12 \div 7$ quotient = 1

Remainder = 5

(b) $\frac{17}{3}$

In $17 \div 3$ quotient = 5

Remainder = 2

So, mixed fraction = $5\frac{2}{3}$

(d) $\frac{97}{11}$

In $97 \div 11$ quotient = 8

Remainder = 9

So, mixed fraction = $8\frac{9}{11}$

(f) $\frac{42}{15}$

In $42 \div 15$ quotient = 2

Remainder = 12

$$\text{So, mixed fraction} = 1\frac{5}{7}$$

$$\text{So, mixed fraction} = 2\frac{12}{15}$$

$$(g) \frac{17}{12}$$

$$(h) \frac{9}{7}$$

In $17 \div 12$ quotient = 1

In $9 \div 7$ quotient = 1

Remainder = 5

Remainder = 2

$$\text{So, mixed fraction} = 1\frac{5}{12}$$

$$\text{So, mixed fraction} = 1\frac{2}{7}$$

8. Change into improper fraction :

$$(a) 4\frac{8}{9}$$

$$(b) 5\frac{2}{3}$$

$$4\frac{8}{9} = \frac{4 \times 9 + 8}{9} = \frac{36 + 8}{9} = \frac{44}{9}$$

$$5\frac{2}{3} = \frac{5 \times 3 + 2}{3} = \frac{15 + 2}{3} = \frac{17}{3}$$

$$(c) 11\frac{2}{21}$$

$$(d) 7\frac{4}{9}$$

$$11\frac{2}{21} = \frac{11 \times 21 + 2}{21} = \frac{231 + 2}{21} = \frac{233}{21}$$

$$7\frac{4}{9} = \frac{7 \times 9 + 4}{9} = \frac{63 + 4}{9} = \frac{67}{9}$$

$$(e) 20\frac{1}{5}$$

$$(f) 2\frac{3}{5}$$

$$20\frac{1}{5} = \frac{20 \times 5 + 1}{5} = \frac{100 + 1}{5} = \frac{101}{5}$$

$$2\frac{3}{5} = \frac{2 \times 5 + 3}{5} = \frac{10 + 3}{5} = \frac{13}{5}$$

$$(g) 12\frac{2}{11}$$

$$(h) 3\frac{1}{2}$$

$$12\frac{2}{11} = \frac{12 \times 11 + 2}{11} = \frac{132 + 2}{11} = \frac{134}{11}$$

$$3\frac{1}{2} = \frac{3 \times 2 + 1}{2} = \frac{6 + 1}{2} = \frac{7}{2}$$



Exercise 5B

1. Fill in the blanks :

$$(a) \frac{3}{5} = \frac{\square}{15}$$

As $5 \times 3 = 15$, So the numerator will be $3 \times 3 = 9$

$$\text{So, the fraction is } \frac{3}{5} = \frac{9}{15}$$

$$(b) \frac{9}{5} = \frac{36}{\square}$$

As $9 \times 4 = 36$, So the denominator will be $5 \times 4 = 20$

So, the fraction is $\frac{9}{5} = \frac{36}{20}$

$$(c) \frac{12}{18} = \frac{\square}{3}$$

As $18 \div 6 = 3$, So the numerator will be $12 \div 6 = 2$

So, the fraction is $\frac{12}{18} = \frac{2}{3}$

$$(d) \frac{9}{12} = \frac{3}{\square}$$

As $9 \div 3 = 3$, So the denominator will be $12 \div 3 = 4$

So, the fraction is $\frac{9}{12} = \frac{3}{4}$

2. Find next two equivalent fraction of :

$$(a) \frac{7}{5}$$

$$\frac{7}{5} = \frac{7 \times 2}{5 \times 2} = \frac{14}{10}$$

$$\frac{7}{5} = \frac{7 \times 3}{5 \times 3} = \frac{21}{15}$$

$$(b) \frac{4}{15}$$

$$\frac{4}{15} = \frac{4 \times 2}{15 \times 2} = \frac{8}{30}$$

$$\frac{4}{15} = \frac{4 \times 3}{15 \times 3} = \frac{12}{45}$$

$$(c) \frac{8}{9}$$

$$\frac{8}{9} = \frac{8 \times 2}{9 \times 2} = \frac{16}{18}$$

$$\frac{8}{9} = \frac{8 \times 3}{9 \times 3} = \frac{24}{27}$$

$$(d) \frac{10}{11}$$

$$\frac{10}{11} = \frac{10 \times 2}{11 \times 2} = \frac{20}{22}$$

$$\frac{10}{11} = \frac{10 \times 3}{11 \times 3} = \frac{30}{33}$$

3. Find next two equivalent fraction of :

$$(a) \frac{50}{70}$$

$$\frac{50}{70} = \frac{50 \div 5}{70 \div 5} = \frac{10}{14}$$

$$\frac{50}{70} = \frac{50 \div 10}{70 \div 10} = \frac{5}{7}$$

$$(b) \frac{21}{63}$$

$$\frac{21}{63} = \frac{21 \div 3}{63 \div 3} = \frac{7}{21}$$

$$\frac{21}{63} = \frac{21 \div 7}{63 \div 7} = \frac{3}{9}$$

$$(c) \frac{24}{36}$$

$$\frac{24}{36} = \frac{24 \div 2}{36 \div 2} = \frac{12}{18}$$

$$\frac{24}{36} = \frac{24 \div 3}{36 \div 3} = \frac{8}{12}$$

$$(d) \frac{18}{27}$$

$$\frac{18}{27} = \frac{18 \div 3}{27 \div 3} = \frac{6}{9}$$

$$\frac{18}{27} = \frac{18 \div 9}{27 \div 9} = \frac{2}{3}$$

4. Change into like fractions :

$$(a) \frac{4}{15} \text{ and } \frac{5}{12}$$

$$\frac{4}{15} = \frac{4 \times 4}{15 \times 4} = \frac{16}{60}$$

$$\frac{5}{12} = \frac{5 \times 5}{12 \times 5} = \frac{25}{60}$$

So, like fraction is $\frac{16}{60}$ and $\frac{25}{60}$.

$$(b) \frac{3}{4} \text{ and } \frac{4}{5}$$

$$\frac{3}{4} = \frac{3 \times 5}{4 \times 5} = \frac{15}{20}$$

$$\frac{4}{5} = \frac{4 \times 4}{5 \times 4} = \frac{16}{20}$$

So, like fraction is $\frac{15}{20}$ and $\frac{16}{20}$.

$$(c) \frac{7}{9} \text{ and } \frac{7}{8}$$

$$\frac{7}{9} = \frac{7 \times 8}{9 \times 8} = \frac{56}{72}$$

$$\frac{7}{8} = \frac{7 \times 9}{8 \times 9} = \frac{63}{72}$$

So, like fraction is $\frac{56}{72}$ and $\frac{63}{72}$.

$$(d) \frac{8}{9} \text{ and } \frac{6}{11}$$

$$\frac{8}{9} = \frac{8 \times 11}{9 \times 11} = \frac{88}{99}$$

$$\frac{6}{11} = \frac{6 \times 9}{11 \times 9} = \frac{54}{99}$$

So, like fraction is $\frac{88}{99}$ and $\frac{54}{99}$.

5. Check whether the pair of fractions are equivalent :

$$(a) \frac{5}{6}, \frac{15}{18}$$

$$\frac{15}{18} = \frac{15 \div 3}{18 \div 3} = \frac{5}{6}$$

The pair of fractions are equivalent.

$$(b) \frac{2}{5}, \frac{6}{15}$$

$$\frac{6}{15} = \frac{6 \div 3}{15 \div 3} = \frac{2}{5}$$

The pair of fractions are equivalent.

$$(c) \frac{3}{9}, \frac{4}{15}$$

The pair of fractions are not equivalent.

$$(d) \frac{39}{49}, \frac{3}{7}$$

The pair of fractions are not equivalent.

6. Fill in the blanks with <, > or = :

(a) $\frac{3}{4}$  $\frac{12}{16}$

$\Rightarrow \frac{3}{4} \begin{array}{c} \nearrow \searrow \\ \nwarrow \nearrow \end{array} \frac{12}{16}$

$3 \times 16 = 48$ and $4 \times 12 = 48$

As $48 = 48$

So, $\frac{3}{4} = \frac{12}{16}$

(b) $\frac{7}{8}$  $\frac{2}{3}$

$\Rightarrow \frac{7}{8} \begin{array}{c} \nearrow \searrow \\ \nwarrow \nearrow \end{array} \frac{2}{3}$

$7 \times 3 = 21$ and $8 \times 2 = 16$

As $21 > 16$

So, $\frac{7}{8} > \frac{2}{3}$


(c) $\frac{4}{5}$  $\frac{3}{4}$

$\Rightarrow \frac{4}{5} \begin{array}{c} \nearrow \searrow \\ \nwarrow \nearrow \end{array} \frac{3}{4}$

$4 \times 4 = 16$ and $5 \times 3 = 15$

As $16 > 15$

So, $\frac{4}{5} > \frac{3}{4}$


(d) $\frac{8}{9}$  $\frac{8}{13}$

$\Rightarrow \frac{8}{9} \begin{array}{c} \nearrow \searrow \\ \nwarrow \nearrow \end{array} \frac{8}{13}$

$8 \times 13 = 104$ and $9 \times 8 = 72$

As $104 > 72$

So, $\frac{8}{9} > \frac{8}{13}$


(e) $\frac{9}{10}$  $\frac{7}{8}$

$\Rightarrow \frac{9}{10} \begin{array}{c} \nearrow \searrow \\ \nwarrow \nearrow \end{array} \frac{7}{8}$

$9 \times 8 = 72$ and $10 \times 7 = 70$

As $72 > 70$

So, $\frac{9}{10} > \frac{7}{8}$

(f) $\frac{7}{9}$  $\frac{6}{9}$

$\Rightarrow \frac{7}{9} \begin{array}{c} \nearrow \searrow \\ \nwarrow \nearrow \end{array} \frac{6}{9}$

$7 \times 9 = 63$ and $9 \times 6 = 54$

As $63 > 54$

So, $\frac{7}{9} > \frac{6}{9}$

7. Fill in the blanks with <, > or = :


(a) $\frac{5}{9}$  $\frac{6}{7}$

$\Rightarrow \frac{5}{9} \begin{array}{c} \nearrow \searrow \\ \nwarrow \nearrow \end{array} \frac{6}{7}$

$5 \times 7 = 35$ and $9 \times 6 = 54$

As $35 < 54$

So, $\frac{5}{9} < \frac{6}{7}$

(b) $\frac{7}{14}$  $\frac{8}{16}$

$\Rightarrow \frac{7}{14} \begin{array}{c} \nearrow \searrow \\ \nwarrow \nearrow \end{array} \frac{8}{16}$

$7 \times 16 = 112$ and $14 \times 8 = 112$

As $112 = 112$

So, $\frac{7}{14} = \frac{8}{16}$

$$(c) \frac{1}{12} \quad \frac{5}{7}$$

$$\Rightarrow \frac{1}{12} \quad \frac{5}{7}$$

$$1 \times 7 = 7 \text{ and } 12 \times 5 = 60$$

$$\text{As } 7 < 60$$

$$\text{So, } \frac{1}{12} < \frac{5}{7}$$

$$(d) \frac{3}{4} \quad \frac{1}{5}$$

$$\Rightarrow \frac{3}{4} \quad \frac{1}{5}$$

$$3 \times 5 = 15 \text{ and } 4 \times 1 = 4$$

$$\text{As } 15 > 4$$

$$\text{So, } \frac{3}{4} > \frac{1}{5}$$

$$(e) \frac{1}{2} \quad \frac{2}{5}$$

$$\Rightarrow \frac{1}{2} \quad \frac{2}{5}$$

$$1 \times 5 = 5 \text{ and } 2 \times 2 = 4$$

$$\text{As } 5 > 4$$

$$\text{So, } \frac{1}{2} > \frac{2}{5}$$

$$(f) \frac{12}{13} \quad \frac{13}{14}$$

$$\Rightarrow \frac{12}{13} \quad \frac{13}{14}$$

$$12 \times 14 = 168 \text{ and } 13 \times 13 = 169$$

$$\text{As } 168 < 169$$

$$\text{So, } \frac{12}{13} < \frac{13}{14}$$

8. Fill in the blanks with <, > or = :

$$(a) 2\frac{3}{5} \quad 11\frac{4}{21}$$

Change to improper fraction

$$2\frac{3}{5} = \frac{2 \times 5 + 3}{5} = \frac{13}{5}$$

$$11\frac{4}{21} = \frac{11 \times 21 + 4}{21} = \frac{235}{21}$$

$$\Rightarrow \frac{13}{5} \quad \frac{235}{21}$$

$$13 \times 21 = 273 \text{ and } 235 \times 5 = 1175$$

$$\text{As } 273 < 1175$$

$$\text{So, } 2\frac{3}{5} < 11\frac{4}{21}$$

$$(b) 3\frac{1}{17} \quad 2\frac{2}{17}$$

Change to improper fraction

$$3\frac{1}{17} = \frac{3 \times 17 + 1}{17} = \frac{52}{17}$$

$$2\frac{2}{17} = \frac{2 \times 17 + 2}{17} = \frac{36}{17}$$

$$\Rightarrow \frac{52}{17} \quad \frac{36}{17}$$

$$52 \times 17 = 884 \text{ and } 36 \times 17 = 612$$

$$\text{As } 884 > 612$$

$$\text{So, } 3\frac{1}{17} > 2\frac{2}{17}$$

$$(c) 2\frac{4}{9} \quad 2\frac{7}{5}$$

Change to improper fraction

$$2\frac{4}{9} = \frac{2 \times 9 + 4}{9} = \frac{22}{9}$$

$$(d) \frac{47}{9} \quad 5\frac{4}{9}$$

Change to improper fraction

$$5\frac{4}{9} = \frac{5 \times 9 + 4}{9} = \frac{49}{9}$$

$$2\frac{7}{5} = \frac{2 \times 5 + 7}{5} = \frac{17}{5}$$

$$\Rightarrow \frac{22}{9} \begin{array}{c} \nearrow \searrow \\ \nearrow \searrow \end{array} \frac{17}{5}$$

$$22 \times 5 = 110 \text{ and } 17 \times 9 = 153$$

$$\text{As } 110 < 153$$

$$\text{So, } 2\frac{4}{9} < 2\frac{7}{5}$$

$$\Rightarrow \frac{47}{9} \begin{array}{c} \nwarrow \swarrow \\ \nwarrow \swarrow \end{array} \frac{49}{9}$$

$$47 \times 9 = 423 \text{ and } 49 \times 9 = 441$$

$$\text{As } 423 < 441$$

$$\text{So, } \frac{47}{9} < 5\frac{4}{9}$$

$$(e) \ 2\frac{1}{5} \quad \text{○} \quad 2\frac{1}{3}$$

Change to improper fraction

$$2\frac{1}{5} = \frac{2 \times 5 + 1}{5} = \frac{11}{5}$$

$$2\frac{1}{3} = \frac{2 \times 3 + 1}{3} = \frac{7}{3}$$

$$\Rightarrow \frac{11}{5} \begin{array}{c} \nwarrow \swarrow \\ \nwarrow \swarrow \end{array} \frac{7}{3}$$

$$11 \times 3 = 33 \text{ and } 5 \times 7 = 35$$

$$\text{As } 33 < 35$$

$$\text{So, } 2\frac{1}{5} < 2\frac{1}{3}$$

$$(f) \ 6\frac{1}{9} \quad \text{○} \quad 8\frac{1}{5}$$

Change to improper fraction

$$6\frac{1}{9} = \frac{6 \times 9 + 1}{9} = \frac{55}{9}$$

$$8\frac{1}{5} = \frac{8 \times 5 + 1}{5} = \frac{41}{5}$$

$$\Rightarrow \frac{55}{9} \begin{array}{c} \nwarrow \swarrow \\ \nwarrow \swarrow \end{array} \frac{41}{5}$$

$$55 \times 5 = 275 \text{ and } 41 \times 9 = 369$$

$$\text{As } 275 < 369$$

$$\text{So, } 6\frac{1}{9} < 8\frac{1}{5}$$

9. Arrange in ascending order :

$$(a) \ \frac{2}{3}, \frac{1}{3}, \frac{4}{3}, \frac{5}{3}$$

Denominator are equal.

Numerators in ascending order : 1, 2, 4, 5

So, the fractions in ascending order are :

$$\frac{1}{3}, \frac{2}{3}, \frac{4}{3}, \frac{5}{3}$$

$$(b) \ \frac{14}{21}, \frac{17}{21}, \frac{12}{21}, \frac{22}{21}$$

Denominator are equal.

Numerators in ascending order : 12, 14, 17, 22

So, the fractions in ascending order are :

$$\frac{12}{21}, \frac{14}{21}, \frac{17}{21}, \frac{22}{21}$$

(c) $1\frac{1}{3}, 1\frac{2}{5}, 1\frac{5}{6}, 1\frac{7}{10}$

Change into improper fraction

$$\frac{4}{3}, \frac{7}{5}, \frac{11}{6}, \frac{17}{10}$$

Let's find the LCM of the denominators to change fractions into like fractions.

LCM of 3, 5, 6 and 10.

$$3 = 1 \times 3$$

$$5 = 1 \times 5$$

$$6 = 2 \times 3$$

$$10 = 2 \times 5$$

So, the LCM is $2 \times 3 \times 5 = 30$

Now, we will convert all the fractions in equivalent fraction.

$$\frac{4}{3} = \frac{4 \times 10}{3 \times 10} = \frac{40}{30}$$

$$\frac{7}{5} = \frac{7 \times 6}{5 \times 6} = \frac{42}{30}$$

$$\frac{11}{6} = \frac{11 \times 5}{6 \times 5} = \frac{55}{30}$$

$$\frac{17}{10} = \frac{17 \times 3}{10 \times 3} = \frac{51}{30}$$

So, now the fraction are :

$$\frac{40}{30}, \frac{42}{30}, \frac{55}{30}, \frac{51}{30}$$

$$\text{So, } \frac{40}{30} < \frac{42}{30} < \frac{51}{30} < \frac{55}{30} \quad \text{or} \quad \frac{4}{3} < \frac{7}{5} < \frac{17}{10} < \frac{11}{6}$$

So, the ascending order is $1\frac{1}{3}, 1\frac{2}{5}, 1\frac{7}{10}, 1\frac{5}{6}$

(d) $\frac{5}{11}, \frac{5}{9}, \frac{5}{13}, \frac{5}{12}$

Numerators are same.

Denominators in descending order : 13, 12, 11, 9

So, fractions in ascending order are :

$$\frac{5}{13}, \frac{5}{12}, \frac{5}{11}, \frac{5}{9}$$

10. Arrange in descending order :

(a) $2\frac{2}{3}, 2\frac{2}{7}, 2\frac{1}{14}, 2\frac{1}{6}$

Change into improper fraction,

$$\frac{8}{3}, \frac{16}{7}, \frac{29}{14}, \frac{13}{6}$$

Let's find the LCM of the denominators to change fractions into like fractions. LCM of 3, 7, 14 and 6

$$3 = 1 \times 3$$

$$7 = 1 \times 7$$

$$14 = 2 \times 7$$

$$6 = 2 \times 3$$

So, the LCM is $= 2 \times 3 \times 7 = 42$

Now, we will convert all the fractions in equivalent fraction.

$$\frac{8}{3} = \frac{8 \times 14}{3 \times 14} = \frac{112}{42}$$

$$\frac{16}{7} = \frac{16 \times 6}{7 \times 6} = \frac{96}{42}$$

$$\frac{29}{14} = \frac{29 \times 3}{14 \times 3} = \frac{87}{42}$$

$$\frac{13}{6} = \frac{13 \times 7}{6 \times 7} = \frac{91}{42}$$

So, now the fraction are :

$$\frac{112}{42}, \frac{96}{42}, \frac{87}{42}, \frac{91}{42}$$

$$\text{So, } \frac{112}{42} > \frac{96}{42} > \frac{91}{42} > \frac{87}{42} \text{ or } \frac{8}{3} > \frac{16}{7} > \frac{13}{6} > \frac{29}{14}$$

So, the descending order are :

$$2\frac{2}{3}, 2\frac{2}{7}, 2\frac{1}{6}, 2\frac{1}{14}$$

$$(b) \frac{2}{9}, \frac{8}{9}, \frac{6}{9}, \frac{7}{9}, \frac{4}{9}$$

Denominator are equal.

Numerators in descending order : 8, 7, 6, 4, 2

So, the fractions in descending order are :

$$\frac{8}{9}, \frac{7}{9}, \frac{6}{9}, \frac{4}{9}, \frac{2}{9}$$

$$(c) \frac{17}{3}, \frac{17}{4}, \frac{17}{19}, \frac{17}{16}, \frac{17}{21}$$

Numerators are equal.

Denominator in ascending order : 3, 4, 16, 19, 21

So, fractions in descending order are :

$$\frac{17}{3}, \frac{17}{4}, \frac{17}{16}, \frac{17}{19}, \frac{17}{21}$$

$$(d) \frac{11}{17}, 3\frac{1}{17}, \frac{19}{17}, 2\frac{2}{17}$$

Change into improper fraction,

$$\frac{11}{17}, \frac{52}{17}, \frac{19}{17}, \frac{36}{17}$$

Denominator are equal.

Numerators in descending order : 52, 36, 19, 11

So, the fractions in descending order are :

$$\frac{52}{17}, \frac{36}{17}, \frac{19}{17}, \frac{11}{17} \quad \text{or} \quad 3\frac{1}{17}, 2\frac{2}{17}, \frac{19}{17}, \frac{11}{17}$$

11. Reduce the fractions to lowest term :

(a) $\frac{16}{28}$

$$\frac{16}{28} = \frac{2 \times 2 \times 2 \times 2}{2 \times 2 \times 7} = \frac{2 \times 2}{7} = \frac{4}{7}$$

So, the lowest term for the fraction $\frac{16}{28}$ is $\frac{4}{7}$.

(b) $\frac{8}{18}$

$$\frac{8}{18} = \frac{2 \times 2 \times 2}{2 \times 3 \times 3} = \frac{2 \times 2}{3 \times 3} = \frac{4}{9}$$

So, the lowest term for the fraction $\frac{8}{18}$ is $\frac{4}{9}$.

(c) $\frac{30}{75}$

$$\frac{30}{75} = \frac{2 \times 3 \times 5}{3 \times 5 \times 5} = \frac{2}{5}$$

So, the lowest term for the fraction $\frac{30}{75}$ is $\frac{2}{5}$.

(d) $\frac{32}{50}$

$$\frac{32}{50} = \frac{2 \times 2 \times 2 \times 2 \times 2}{2 \times 5 \times 5} = \frac{2 \times 2 \times 2 \times 2}{5 \times 5} = \frac{16}{25}$$

So, the lowest term for the fraction $\frac{32}{50}$ is $\frac{16}{25}$.

(e) $\frac{18}{15}$

$$\frac{18}{15} = \frac{2 \times 3 \times 3}{3 \times 5} = \frac{2 \times 3}{5} = \frac{6}{5}$$

So, the lowest term for the fraction $\frac{18}{15}$ is $\frac{6}{5}$.

(f) $\frac{54}{72}$

$$\frac{54}{72} = \frac{2 \times 3 \times 3 \times 3}{2 \times 2 \times 2 \times 3 \times 3} = \frac{3}{2 \times 2} = \frac{3}{4}$$

So, the lowest term for the fraction $\frac{54}{72}$ is $\frac{3}{4}$.

12. Which of these are in lowest term :

(a) $\frac{7}{12}$ = Lowest term

(b) $\frac{5}{15} = \frac{1}{3}$ = Not lowest term

(c) $\frac{4}{11}$ = Lowest term

(d) $\frac{72}{62} = \frac{36}{31}$ = Not lowest term



Exercise 5C

Add the following :

1. (a) $\frac{3}{8} + \frac{5}{8} = \frac{3+5}{8} = \frac{8}{8} = 1$

(c) $\frac{3}{13} + \frac{4}{13} = \frac{3+4}{13} = \frac{7}{13}$

2. (a) $\frac{11}{9} + \frac{4}{9} = \frac{11+4}{9} = \frac{15}{9} = \frac{5}{3}$

(c) $\frac{13}{15} + \frac{7}{15} = \frac{13+7}{15} = \frac{20}{15} = \frac{4}{3}$

3. (a) $2\frac{1}{7} + 3\frac{2}{7} = \frac{15}{7} + \frac{23}{7}$
 $= \frac{15+23}{7} = \frac{38}{7}$

(c) $5\frac{7}{8} + \frac{3}{8} = \frac{47}{8} + \frac{3}{8}$
 $= \frac{47+3}{8} = \frac{50}{8} = \frac{25}{4}$

(b) $\frac{2}{15} + \frac{8}{15} = \frac{2+8}{15} = \frac{10}{15} = \frac{2}{3}$

(d) $\frac{7}{25} + \frac{6}{25} = \frac{7+6}{25} = \frac{13}{25}$

(b) $\frac{7}{10} + \frac{12}{10} = \frac{7+12}{10} = \frac{19}{10}$

(d) $\frac{91}{90} + \frac{81}{90} = \frac{91+81}{90} = \frac{172}{90} = \frac{86}{45}$

(b) $\frac{4}{5} + 1\frac{1}{5} = \frac{4}{5} + \frac{6}{5}$
 $= \frac{4+6}{5} = \frac{10}{5} = 2$

(d) $\frac{17}{80} + 3\frac{12}{80} = \frac{17}{80} + \frac{252}{80}$
 $= \frac{17+252}{80} = \frac{269}{80}$

Subtract the following :

$$\begin{aligned} 4. \quad (a) \quad \frac{9}{16} - \frac{3}{16} &= \frac{9-3}{16} \\ &= \frac{6}{16} = \frac{3}{8} \end{aligned}$$

$$\begin{aligned} (b) \quad \frac{18}{75} - \frac{6}{75} &= \frac{18-6}{75} \\ &= \frac{12}{75} = \frac{4}{25} \end{aligned}$$

$$\begin{aligned} (c) \quad 3\frac{5}{9} - \frac{7}{9} &= \frac{32}{9} - \frac{7}{9} \\ &= \frac{32-7}{9} = \frac{25}{9} \end{aligned}$$

$$\begin{aligned} (d) \quad 2\frac{5}{18} - 1\frac{5}{18} &= \frac{41}{18} - \frac{23}{18} \\ &= \frac{41-23}{18} = \frac{18}{18} = 1 \end{aligned}$$

Add the following :

$$\begin{aligned} 5. \quad (a) \quad \frac{9}{20} + \frac{13}{20} + \frac{7}{20} &= \frac{9+13+7}{20} \\ &= \frac{29}{20} \end{aligned}$$

$$\begin{aligned} (b) \quad \frac{22}{60} + \frac{17}{60} + \frac{7}{60} &= \frac{22+17+7}{60} \\ &= \frac{46}{60} = \frac{23}{30} \end{aligned}$$

$$\begin{aligned} (c) \quad \frac{2}{51} + \frac{24}{51} + \frac{23}{51} &= \frac{2+24+23}{51} \\ &= \frac{49}{51} \end{aligned}$$

$$\begin{aligned} (d) \quad \frac{19}{35} + \frac{17}{35} + \frac{9}{35} &= \frac{19+17+9}{35} \\ &= \frac{45}{35} = \frac{9}{7} \end{aligned}$$

$$\begin{aligned} 6. \quad (a) \quad 3\frac{2}{27} + 1\frac{5}{27} + \frac{20}{27} &= \frac{83}{27} + \frac{32}{27} + \frac{20}{27} \\ &= \frac{83+32+20}{27} = \frac{135}{27} = 5 \end{aligned}$$

$$\begin{aligned} (b) \quad 2\frac{3}{35} + 8\frac{2}{35} + 3\frac{3}{35} &= \frac{73}{35} + \frac{282}{35} + \frac{108}{35} \\ &= \frac{73+282+108}{35} = \frac{463}{35} \end{aligned}$$

$$\begin{aligned} (c) \quad \frac{9}{80} + 11\frac{1}{80} + \frac{49}{80} &= \frac{9}{80} + \frac{881}{80} + \frac{49}{80} \\ &= \frac{9+881+49}{80} = \frac{939}{80} = 11\frac{59}{80} \end{aligned}$$

$$\begin{aligned} (d) \quad 3\frac{7}{45} + 9\frac{13}{45} + 4\frac{8}{45} &= \frac{142}{45} + \frac{418}{45} + \frac{188}{45} \\ &= \frac{142+418+188}{45} = \frac{748}{45} = 16\frac{28}{45} \end{aligned}$$



Exercise 5D

1. Change into like fractions and add :

(a) $\frac{1}{2} + \frac{1}{3}$

The LCM of the denominator 2 and 3 is 6.

$$\frac{1}{2} + \frac{1}{3} = \frac{(1 \times 3) + (1 \times 2)}{6} = \frac{3 + 2}{6} = \frac{5}{6}$$

(b) $\frac{1}{5} + \frac{3}{8}$

The LCM of the denominator 5 and 8 is 40.

$$\frac{1}{5} + \frac{3}{8} = \frac{(1 \times 8) + (3 \times 5)}{40} = \frac{8 + 15}{40} = \frac{23}{40}$$

(c) $\frac{4}{9} + \frac{1}{3}$

The LCM of the denominator 9 and 3 is 27.

$$\frac{4}{9} + \frac{1}{3} = \frac{(4 \times 3) + (1 \times 9)}{27} = \frac{12 + 9}{27} = \frac{21}{27} = \frac{7}{9}$$

(d) $\frac{7}{11} + \frac{19}{6}$

The LCM of the denominator 11 and 6 is 66.

$$\frac{7}{11} + \frac{19}{6} = \frac{(7 \times 6) + (19 \times 11)}{66} = \frac{42 + 209}{66} = \frac{251}{66}$$

(e) $\frac{7}{6} + \frac{13}{9}$

The LCM of the denominator 6 and 9 is 54.

$$\frac{7}{6} + \frac{13}{9} = \frac{(7 \times 9) + (13 \times 6)}{54} = \frac{63 + 78}{54} = \frac{141}{54}$$

(f) $\frac{3}{4} + \frac{4}{5}$

The LCM of the denominator 4 and 5 is 20.

$$\frac{3}{4} + \frac{4}{5} = \frac{(3 \times 5) + (4 \times 4)}{20} = \frac{15 + 16}{20} = \frac{31}{20}$$

Add the following :

2. (a) $\frac{3}{4} + \frac{1}{5}$

The LCM of the denominator 4 and 5 is 20.

$$\frac{3}{4} + \frac{1}{5} = \frac{(3 \times 5) + (1 \times 4)}{20} = \frac{15 + 4}{20} = \frac{19}{20}$$

(b) $\frac{3}{10} + \frac{7}{16}$

The LCM of the denominator 10 and 16 is 80.

$$\frac{3}{10} + \frac{7}{16} = \frac{(3 \times 8) + (7 \times 5)}{80} = \frac{24 + 35}{80} = \frac{59}{80}$$

(c) $\frac{7}{30} + \frac{3}{8}$

The LCM of the denominator 30 and 8 is 240.

$$\frac{7}{30} + \frac{3}{8} = \frac{(7 \times 8) + (3 \times 30)}{240} = \frac{56 + 90}{240} = \frac{146}{240} = \frac{73}{120}$$

(d) $\frac{9}{20} + \frac{2}{5}$

The LCM of the denominator 20 and 5 is 20.

$$\frac{9}{20} + \frac{2}{5} = \frac{9 + (2 \times 4)}{20} = \frac{9 + 8}{20} = \frac{17}{20}$$

3. (a) $\frac{5}{11} + \frac{2}{7}$

The LCM of the denominator 11 and 7 is 77.

$$\frac{5}{11} + \frac{2}{7} = \frac{(5 \times 7) + (2 \times 11)}{77} = \frac{35 + 22}{77} = \frac{57}{77}$$

(b) $\frac{7}{17} + \frac{19}{27}$

The LCM of the denominator 17 and 27 is 459.

$$\frac{7}{17} + \frac{19}{27} = \frac{(7 \times 27) + (19 \times 17)}{459} = \frac{189 + 323}{459} = \frac{512}{459}$$

(c) $\frac{32}{33} + \frac{5}{47}$

The LCM of the denominator 33 and 47 is 1551.

$$\frac{32}{33} + \frac{5}{47} = \frac{(32 \times 47) + (5 \times 33)}{1551} = \frac{1504 + 165}{1551} = \frac{1669}{1551}$$

(d) $\frac{23}{15} + \frac{3}{23}$

The LCM of the denominator 15 and 23 is 345.

$$\begin{aligned} \frac{23}{15} + \frac{3}{23} &= \frac{(23 \times 23) + (3 \times 15)}{345} \\ &= \frac{529 + 45}{345} = \frac{574}{345} \end{aligned}$$

4. (a) $\frac{1}{10} + \frac{1}{8} + \frac{1}{3}$

The LCM of the denominators 10, 8 and 3 is 240.

$$\begin{aligned}\frac{1}{10} + \frac{1}{8} + \frac{1}{3} &= \frac{(1 \times 24) + (1 \times 30) + (1 \times 80)}{240} \\ &= \frac{24 + 30 + 80}{240} = \frac{134}{240} = \frac{67}{120}\end{aligned}$$

(b) $\frac{3}{4} + \frac{1}{11} + \frac{5}{30}$

The LCM of the denominators 4, 11 and 30 is 1320.

$$\begin{aligned}\frac{3}{4} + \frac{1}{11} + \frac{5}{30} &= \frac{(3 \times 330) + (1 \times 120) + (5 \times 44)}{1320} \\ &= \frac{990 + 120 + 220}{1320} = \frac{1330}{1320} = \frac{133}{132}\end{aligned}$$

(c) $\frac{2}{5} + \frac{3}{10} + \frac{7}{5}$

The LCM of the denominators 5, 10 and 5 is 10.

$$\begin{aligned}\frac{2}{5} + \frac{3}{10} + \frac{7}{5} &= \frac{(2 \times 2) + 3 + (7 \times 2)}{10} \\ &= \frac{4 + 3 + 14}{10} = \frac{21}{10}\end{aligned}$$

(d) $\frac{1}{10} + \frac{3}{20} + \frac{2}{5}$

The LCM of the denominators 10, 20 and 5 is 20.

$$\begin{aligned}\frac{1}{10} + \frac{3}{20} + \frac{2}{5} &= \frac{(1 \times 2) + 3 + (2 \times 4)}{20} \\ &= \frac{2 + 3 + 8}{20} = \frac{13}{20}\end{aligned}$$

5. Fill in the blanks :

(a) $2 + \frac{1}{7} = \frac{2}{1} + \frac{1}{7}$

The LCM of the denominator 1 and 7 is 7.

$$\frac{2}{1} + \frac{1}{7} = \frac{(2 \times 7) + 1}{7} = \frac{14 + 1}{7} = \frac{15}{7}$$

(b) $4 + \frac{1}{3} = \frac{4}{1} + \frac{1}{3}$

The LCM of the denominator 1 and 3 is 3.

$$\frac{4}{1} + \frac{1}{3} = \frac{(4 \times 3) + 1}{3} = \frac{12 + 1}{3} = \frac{13}{3}$$

$$(c) 4 + \frac{2}{3} = \frac{4}{1} + \frac{2}{3}$$

The LCM of the denominator 1 and 3 is 3.

$$\frac{4}{1} + \frac{2}{3} = \frac{(4 \times 3) + 2}{3} = \frac{12 + 2}{3} = \frac{14}{3}$$

$$(d) 6 + \frac{5}{6} = \frac{6}{1} + \frac{5}{6}$$

The LCM of the denominator 1 and 6 is 6.

$$\frac{6}{1} + \frac{5}{6} = \frac{(6 \times 6) + 5}{6} = \frac{36 + 5}{6} = \frac{41}{6}$$



Exercise 5E

Add the following :

$$1. (a) 2\frac{1}{10} + 3\frac{4}{5} = \frac{21}{10} + \frac{19}{5}$$

The LCM of denominators 10 and 5 is 10.

$$\text{So, } \frac{21}{10} + \frac{19}{5} = \frac{21 + (19 \times 2)}{10} = \frac{21 + 38}{10} = \frac{59}{10} = 5\frac{9}{10}$$

$$(b) 3\frac{1}{2} + 4\frac{1}{2} = \frac{7}{2} + \frac{9}{2} = \frac{7+9}{2} = \frac{16}{2} = 8$$

$$(c) \frac{1}{2} + 1\frac{3}{4} = \frac{1}{2} + \frac{7}{4}$$

The LCM of denominators 2 and 4 is 4.

$$\begin{aligned} \frac{1}{2} + \frac{7}{4} &= \frac{(1 \times 2) + 7}{4} \\ &= \frac{2 + 7}{4} = \frac{9}{4} = 2\frac{1}{4} \end{aligned}$$

$$(d) 6\frac{3}{7} + 2\frac{5}{8} = \frac{45}{7} + \frac{21}{8}$$

The LCM of denominators 7 and 8 is 56.

$$\begin{aligned} \frac{45}{7} + \frac{21}{8} &= \frac{(45 \times 8) + (21 \times 7)}{56} = \frac{360 + 147}{56} \\ &= \frac{507}{56} = 9\frac{3}{56} \end{aligned}$$

$$2. (a) \frac{5}{12} + 3\frac{7}{12} = \frac{5}{12} + \frac{43}{12}$$

$$= \frac{5+43}{12} = \frac{48}{12} = 4$$

$$(b) 5\frac{7}{16} + 4\frac{5}{8} = \frac{87}{16} + \frac{37}{8}$$

The LCM of denominators 16 and 8 is 16.

$$\frac{87}{16} + \frac{37}{8} = \frac{87 + (37 \times 2)}{16} = \frac{87 + 74}{16} = \frac{161}{16} = 10\frac{1}{16}$$

$$(c) 3\frac{9}{20} + 2\frac{7}{18} = \frac{69}{20} + \frac{43}{18}$$

The LCM of denominators 20 and 18 is 180.

$$\frac{69}{20} + \frac{43}{18} = \frac{(69 \times 9) + (43 \times 10)}{180}$$

$$= \frac{621 + 430}{180} = \frac{1051}{180} = 5\frac{151}{180}$$

$$(d) 4\frac{2}{15} + 1\frac{7}{12} = \frac{62}{15} + \frac{19}{12}$$

The LCM of denominators 15 and 12 is 60.

$$\frac{62}{15} + \frac{19}{12} = \frac{(62 \times 4) + (19 \times 5)}{60}$$

$$= \frac{248 + 95}{60} = \frac{343}{60} = 5\frac{43}{60}$$

$$3. (a) 3 + 3\frac{2}{3} + 2\frac{1}{9} = \frac{3}{1} + \frac{11}{3} + \frac{19}{9}$$

The LCM of the denominators 1, 3 and 9 is 9.

$$\frac{3}{1} + \frac{11}{3} + \frac{19}{9} = \frac{(3 \times 9) + (11 \times 3) + 19}{9}$$

$$= \frac{27 + 33 + 19}{9} = \frac{79}{9} = 8\frac{7}{9}$$

$$(b) 5 + \frac{3}{4} + 2\frac{5}{8} = \frac{5}{1} + \frac{3}{4} + \frac{21}{8}$$

The LCM of the denominators 1, 4 and 8 is 8.

$$\frac{5}{1} + \frac{3}{4} + \frac{21}{8} = \frac{(5 \times 8) + (3 \times 2) + 21}{8}$$

$$= \frac{40 + 6 + 21}{8} = \frac{67}{8} = 8\frac{3}{8}$$

$$(c) \frac{14}{9} + 1\frac{1}{9} + \frac{25}{18} = \frac{14}{9} + \frac{10}{9} + \frac{25}{18}$$

The LCM of the denominators 9, 9 and 18 is 18.

$$\begin{aligned} \frac{14}{9} + \frac{10}{9} + \frac{25}{18} &= \frac{(14 \times 2) + (10 \times 2) + 25}{18} \\ &= \frac{28 + 20 + 25}{18} = \frac{73}{18} = 4\frac{1}{18} \end{aligned}$$

$$(d) 1\frac{1}{7} + 2\frac{1}{14} + 3\frac{1}{28} = \frac{8}{7} + \frac{29}{14} + \frac{85}{28}$$

The LCM of the denominators 7, 14 and 28 is 28.

$$\begin{aligned} \frac{8}{7} + \frac{29}{14} + \frac{85}{28} &= \frac{(8 \times 4) + (29 \times 2) + 85}{28} \\ &= \frac{32 + 58 + 85}{28} = \frac{175}{28} = \frac{25}{4} = 6\frac{1}{4} \end{aligned}$$

$$4. (a) 4\frac{3}{8} + 3\frac{5}{8} = \frac{35}{8} + \frac{29}{8} = \frac{35 + 29}{8} = \frac{64}{8} = 8$$

$$(b) 3\frac{2}{5} + 2\frac{3}{10} = \frac{17}{5} + \frac{23}{10}$$

The LCM of the denominators 5 and 10 is 10.

$$\begin{aligned} \frac{17}{5} + \frac{23}{10} &= \frac{(17 \times 2) + 23}{10} \\ &= \frac{34 + 23}{10} = \frac{57}{10} = 5\frac{7}{10} \end{aligned}$$

$$(c) 2\frac{1}{25} + 7\frac{3}{50} = \frac{51}{25} + \frac{353}{50}$$

The LCM of the denominators 25 and 50 is 50.

$$\begin{aligned} \frac{51}{25} + \frac{353}{50} &= \frac{(51 \times 2) + 353}{50} \\ &= \frac{102 + 353}{50} = \frac{455}{50} = \frac{91}{10} = 9\frac{1}{10} \end{aligned}$$

$$(d) 3\frac{4}{5} + 5\frac{6}{7} = \frac{19}{5} + \frac{41}{7}$$

The LCM of the denominators 5 and 7 is 35.

$$\begin{aligned} \frac{19}{5} + \frac{41}{7} &= \frac{(19 \times 7) + (41 \times 5)}{35} \\ &= \frac{133 + 205}{35} = \frac{338}{35} = 9\frac{23}{35} \end{aligned}$$

$$5. (a) 3\frac{3}{6} + 2\frac{5}{9} + 2 = \frac{21}{6} + \frac{23}{9} + \frac{2}{1}$$

The LCM of the denominators 6, 9 and 1 is 18.

$$\begin{aligned}\frac{21}{6} + \frac{23}{9} + \frac{2}{1} &= \frac{(21 \times 3) + (23 \times 2) + (2 \times 18)}{18} \\ &= \frac{63 + 46 + 36}{18} = \frac{145}{18} = 8\frac{1}{18}\end{aligned}$$

$$(b) \frac{17}{18} + \frac{11}{36} + 4 = \frac{17}{18} + \frac{11}{36} + \frac{4}{1}$$

The LCM of the denominators 18, 36 and 1 is 36.

$$\begin{aligned}\frac{17}{18} + \frac{11}{36} + \frac{4}{1} &= \frac{(17 \times 2) + 11 + (4 \times 36)}{36} \\ &= \frac{34 + 11 + 144}{36} = \frac{189}{36} = \frac{63}{12} = 5\frac{3}{12}\end{aligned}$$

$$(c) 3\frac{1}{27} + 4\frac{1}{27} = \frac{82}{27} + \frac{109}{27} = \frac{82 + 109}{27} = \frac{191}{27} = 7\frac{2}{27}$$

$$(d) 2\frac{2}{5} + 5\frac{3}{10} + 6 = \frac{12}{5} + \frac{53}{10} + \frac{6}{1}$$

The LCM of the denominators 5, 10 and 1 is 10.

$$\begin{aligned}\frac{12}{5} + \frac{53}{10} + \frac{6}{1} &= \frac{(12 \times 2) + 53 + (6 \times 10)}{10} \\ &= \frac{24 + 53 + 60}{10} = \frac{137}{10} = 13\frac{7}{10}\end{aligned}$$



Exercise 5F

1. Change into like fractions and subtract :

$$(a) \frac{8}{9} - \frac{1}{4}$$

The LCM of the denominator 9 and 4 is 36.

$$\frac{8}{9} - \frac{1}{4} = \frac{(8 \times 4) - (1 \times 9)}{36} = \frac{32 - 9}{36} = \frac{23}{36}$$

$$(b) 7\frac{1}{10} - 5\frac{1}{3} = \frac{71}{10} - \frac{16}{3}$$

The LCM of the denominator 10 and 3 is 30.

$$\begin{aligned}\frac{71}{10} - \frac{16}{3} &= \frac{(71 \times 3) - (16 \times 10)}{30} \\ &= \frac{213 - 160}{30} = \frac{53}{30}\end{aligned}$$

(c) $\frac{4}{3} - \frac{1}{2}$

The LCM of the denominator 3 and 2 is 6.

$$\frac{4}{3} - \frac{1}{2} = \frac{(4 \times 2) - (1 \times 3)}{6} = \frac{8 - 3}{6} = \frac{5}{6}$$

(d) $6\frac{3}{12} - 3\frac{7}{15} = \frac{75}{12} - \frac{52}{15}$

The LCM of the denominator 12 and 15 is 60.

$$\begin{aligned}\frac{75}{12} - \frac{52}{15} &= \frac{(75 \times 5) - (52 \times 4)}{60} \\ &= \frac{375 - 208}{60} = \frac{167}{60}\end{aligned}$$

(e) $\frac{11}{12} - \frac{8}{9}$

The LCM of the denominator 12 and 9 is 36.

$$\frac{11}{12} - \frac{8}{9} = \frac{(11 \times 3) - (8 \times 4)}{36} = \frac{33 - 32}{36} = \frac{1}{36}$$

(f) $\frac{19}{10} - \frac{29}{30}$

The LCM of the denominator 10 and 30 is 30.

$$\frac{19}{10} - \frac{29}{30} = \frac{(19 \times 3) - 29}{30} = \frac{57 - 29}{30} = \frac{28}{30}$$

Subtract the following :

2. (a) $\frac{17}{16} - \frac{3}{8}$

The LCM of the denominators 16 and 8 is 16.

$$\frac{17}{16} - \frac{3}{8} = \frac{17 - (3 \times 2)}{16} = \frac{17 - 6}{16} = \frac{11}{16}$$

(b) $\frac{22}{40} - \frac{2}{9}$

The LCM of the denominators 40 and 9 is 360.

$$\frac{22}{40} - \frac{2}{9} = \frac{(22 \times 9) - (2 \times 40)}{360} = \frac{198 - 80}{360} = \frac{118}{360} = \frac{59}{180}$$

(c) $\frac{13}{16} - \frac{9}{32}$

The LCM of the denominators 16 and 32 is 32.

$$\frac{13}{16} - \frac{9}{32} = \frac{(13 \times 2) - 9}{32} = \frac{26 - 9}{32} = \frac{17}{32}$$

3. (a) $\frac{6}{7} - \frac{3}{8}$

The LCM of the denominators 7 and 8 is 56.

$$\frac{6}{7} - \frac{3}{8} = \frac{(6 \times 8) - (7 \times 3)}{56} = \frac{48 - 21}{56} = \frac{27}{56}$$

(b) $\frac{12}{13} - \frac{8}{15}$

The LCM of the denominators 13 and 15 is 195.

$$\frac{12}{13} - \frac{8}{15} = \frac{(12 \times 15) - (8 \times 13)}{195} = \frac{180 - 104}{195} = \frac{76}{195}$$

(c) $\frac{11}{9} - \frac{9}{18}$

The LCM of the denominators 9 and 18 is 18.

$$\frac{11}{9} - \frac{9}{18} = \frac{(11 \times 2) - 9}{18} = \frac{22 - 9}{18} = \frac{13}{18}$$

4. (a) $5 - \frac{3}{7} = \frac{5}{1} - \frac{3}{7}$

The LCM of the denominators 1 and 7 is 7.

$$\frac{5}{1} - \frac{3}{7} = \frac{(5 \times 7) - 3}{7} = \frac{35 - 3}{7} = \frac{32}{7}$$

(b) $2 - \frac{1}{9} = \frac{2}{1} - \frac{1}{9}$

The LCM of the denominators 1 and 9 is 9.

$$\frac{2}{1} - \frac{1}{9} = \frac{(2 \times 9) - 1}{9} = \frac{18 - 1}{9} = \frac{17}{9}$$

(c) $8 - \frac{13}{25} = \frac{8}{1} - \frac{13}{25}$

The LCM of the denominators 1 and 25 is 25.

$$\frac{8}{1} - \frac{13}{25} = \frac{(8 \times 25) - 13}{25} = \frac{200 - 13}{25} = \frac{187}{25}$$

$$5. (a) 2\frac{1}{5} - \frac{4}{3} = \frac{11}{5} - \frac{4}{3}$$

The LCM of the denominators 5 and 3 is 15.

$$\frac{11}{5} - \frac{4}{3} = \frac{(11 \times 3) - (4 \times 5)}{15} = \frac{33 - 20}{15} = \frac{13}{15}$$

$$(b) 4\frac{5}{16} - \frac{6}{5} = \frac{69}{16} - \frac{6}{5}$$

The LCM of the denominators 16 and 5 is 80.

$$\frac{69}{16} - \frac{6}{5} = \frac{(69 \times 5) - (6 \times 16)}{80} = \frac{345 - 96}{80} = \frac{249}{80}$$

$$(c) 1\frac{5}{4} - 1\frac{1}{2} = \frac{9}{4} - \frac{3}{2}$$

The LCM of the denominators 4 and 2 is 4.

$$\frac{9}{4} - \frac{3}{2} = \frac{9 - (3 \times 2)}{4} = \frac{9 - 6}{4} = \frac{3}{4}$$

$$6. (a) 9\frac{3}{10} - 5\frac{4}{5} = \frac{93}{10} - \frac{29}{5}$$

The LCM of the denominator 10 and 5 is 10.

$$\frac{93}{10} - \frac{29}{5} = \frac{93 - (29 \times 2)}{10} = \frac{93 - 58}{10} = \frac{35}{10} = 3\frac{5}{10}$$

$$(b) 9\frac{4}{5} - 5\frac{2}{3} = \frac{49}{5} - \frac{17}{3}$$

The LCM of the denominator 5 and 3 is 15.

$$\frac{49}{5} - \frac{17}{3} = \frac{(49 \times 3) - (17 \times 5)}{15} = \frac{147 - 85}{15} = \frac{62}{15} = 4\frac{2}{15}$$

$$(c) 3\frac{16}{20} - 3\frac{9}{20} = \frac{76}{20} - \frac{69}{20} = \frac{76 - 69}{20} = \frac{7}{20}$$

$$7. (a) 4 - 3\frac{3}{4} = \frac{4}{1} - \frac{15}{4}$$

The LCM of the denominators 1 and 4 is 4.

$$\frac{4}{1} - \frac{15}{4} = \frac{(4 \times 4) - 15}{4} = \frac{16 - 15}{4} = \frac{1}{4}$$

$$(b) 9 - 4\frac{2}{15} = \frac{9}{1} - \frac{62}{15}$$

The LCM of the denominators 1 and 15 is 15.

$$\frac{9}{1} - \frac{62}{15} = \frac{(9 \times 15) - 62}{15} = \frac{135 - 62}{15} = \frac{73}{15}$$

$$(c) 13\frac{4}{8} - 7 = \frac{108}{8} - \frac{7}{1}$$

The LCM of the denominators 8 and 1 is 8.

$$\begin{aligned} \frac{108}{8} - \frac{7}{1} &= \frac{108 - (7 \times 8)}{8} \\ &= \frac{108 - 56}{8} = \frac{52}{8} = \frac{13}{2} \end{aligned}$$

8. Fill in the blanks :

$$(a) \frac{3}{8} + \frac{\quad}{\quad} = \frac{15}{16}$$

$$\Rightarrow \frac{15}{16} - \frac{3}{8}$$

The LCM of the denominator 16 and 8 is 16.

$$\frac{15}{16} - \frac{3}{8} = \frac{15 - (3 \times 2)}{16} = \frac{15 - 6}{16} = \frac{9}{16}$$

$$(b) \frac{8}{9} + \frac{8}{9} = \frac{\quad}{\quad}$$

$$\Rightarrow \frac{8}{9} + \frac{8}{9} = \frac{8+8}{9} = \frac{16}{9}$$

$$(c) 0 + \frac{1}{1} + 0 = \frac{\quad}{\quad}$$

$$\Rightarrow 0 + \frac{1}{1} + 0 = \frac{0+1+0}{1} = \frac{1}{1} = 1$$



Exercise 5G

Simplify the following :

$$1. (a) \frac{4}{7} + \frac{5}{7} - \frac{3}{7}$$

$$\Rightarrow \frac{4+5-3}{7} = \frac{9-3}{7} = \frac{6}{7}$$

$$(b) 4 + \frac{8}{15} - \frac{3}{15} = \frac{4}{1} + \frac{8}{15} - \frac{3}{15}$$

The LCM of denominators 1, 15 and 15 is 15.

$$\therefore \frac{4}{1} + \frac{8}{15} - \frac{3}{15} = \frac{(4 \times 15) + 8 - 3}{15} = \frac{60 + 8 - 3}{15} \\ = \frac{68 - 3}{15} = \frac{65}{15} = \frac{13}{3}$$

$$(c) 7\frac{3}{12} + 2\frac{7}{12} - \frac{7}{12} = \frac{87}{12} + \frac{31}{12} - \frac{7}{12} \\ = \frac{87 + 31 - 7}{12} = \frac{118 - 7}{12} = \frac{111}{12}$$

$$(d) 3\frac{4}{7} + 2\frac{1}{7} - 5 = \frac{25}{7} + \frac{15}{7} - \frac{5}{1}$$

The LCM of denominators 7, 7 and 1 is 7.

$$\therefore \frac{25}{7} + \frac{15}{7} - \frac{5}{1} = \frac{25 + 15 - 5 \times 7}{7} \\ = \frac{25 + 15 - 35}{7} = \frac{40 - 35}{7} = \frac{5}{7}$$

$$2. (a) 6 - \frac{1}{5} + 3\frac{1}{2} = \frac{6}{1} - \frac{1}{5} + \frac{7}{2}$$

The LCM of denominators 1, 5 and 2 is 10.

$$\therefore \frac{6}{1} - \frac{1}{5} + \frac{7}{2} = \frac{(6 \times 10) - (1 \times 2) + (7 \times 5)}{10} \\ = \frac{60 - 2 + 35}{10} = \frac{95 - 2}{10} = \frac{93}{10}$$

$$(b) 5\frac{4}{21} - 5\frac{1}{14} + 3 = \frac{109}{21} - \frac{71}{14} + \frac{3}{1}$$

The LCM of denominators 21, 14 and 1 is 42.

$$\therefore \frac{109}{21} - \frac{71}{14} + \frac{3}{1} = \frac{(109 \times 2) - (71 \times 3) + (3 \times 42)}{42} \\ = \frac{218 - 213 + 126}{42} \\ = \frac{344 - 213}{42} = \frac{131}{42} = 3\frac{5}{42}$$

$$(c) \frac{1}{3} - \frac{4}{15} + \frac{1}{3}$$

The LCM of denominators 3, 15 and 3 is 15.

$$\therefore \frac{1}{3} - \frac{4}{15} + \frac{1}{3} = \frac{(1 \times 5) - 4 + (1 \times 5)}{15} = \frac{5 - 4 + 5}{15} \\ = \frac{10 - 4}{15} = \frac{6}{15} = \frac{2}{5}$$

$$(d) 3\frac{2}{5} - 2\frac{3}{10} - \frac{4}{15} = \frac{17}{5} - \frac{23}{10} - \frac{4}{15}$$

The LCM of denominators 5, 10 and 15 is 30.

$$\begin{aligned}\therefore \frac{17}{5} - \frac{23}{10} - \frac{4}{15} &= \frac{(17 \times 6) - (23 \times 3) - (4 \times 2)}{30} = \frac{102 - 69 - 8}{30} \\ &= \frac{102 - 77}{30} = \frac{25}{30} = \frac{5}{6}\end{aligned}$$

$$3. (a) 9 - \frac{3}{4} - \frac{5}{8} = \frac{9}{1} - \frac{3}{4} - \frac{5}{8}$$

The LCM of denominators 1, 4 and 8 is 8.

$$\begin{aligned}\therefore \frac{9}{1} - \frac{3}{4} - \frac{5}{8} &= \frac{(9 \times 8) - (3 \times 2) - 5}{8} \\ &= \frac{72 - 6 - 5}{8} = \frac{72 - 11}{8} = \frac{61}{8}\end{aligned}$$

$$(b) 4\frac{6}{7} - \frac{9}{20} - 2 = \frac{34}{7} - \frac{9}{20} - \frac{2}{1}$$

The LCM of denominators 7, 20 and 1 is 140.

$$\begin{aligned}\therefore \frac{34}{7} - \frac{9}{20} - \frac{2}{1} &= \frac{(34 \times 20) - (9 \times 7) - (2 \times 140)}{140} \\ &= \frac{680 - 63 - 280}{140} = \frac{680 - 343}{140} = \frac{337}{140} = 2\frac{57}{140}\end{aligned}$$

$$\begin{aligned}(c) 9\frac{10}{11} - 4\frac{1}{11} - 5\frac{1}{11} &= \frac{109}{11} - \frac{45}{11} - \frac{56}{11} \\ &= \frac{109 - 45 - 56}{11} = \frac{109 - 101}{11} = \frac{8}{11}\end{aligned}$$

$$(d) 4\frac{1}{6} - 2\frac{1}{9} - 1\frac{5}{18} = \frac{25}{6} - \frac{19}{9} - \frac{23}{18}$$

The LCM of denominators 6, 9 and 18 is 18.

$$\begin{aligned}\therefore \frac{25}{6} - \frac{19}{9} - \frac{23}{18} &= \frac{(25 \times 3) - (19 \times 2) - 23}{18} \\ &= \frac{75 - 38 - 23}{18} = \frac{75 - 61}{18} = \frac{14}{18} = \frac{7}{9}\end{aligned}$$

4. Solve the following :

$$\begin{aligned}&9 - \left(\frac{3}{12} + 2\frac{5}{24} + 2\frac{7}{36} \right) \\ \Rightarrow &9 - \left(\frac{3}{12} + \frac{53}{24} + \frac{79}{36} \right)\end{aligned}$$

The LCM of denominators 12, 24 and 36 is 72.

$$\begin{aligned}\therefore 9 - \left(\frac{3}{12} + \frac{53}{24} + \frac{79}{36} \right) &= 9 - \left(\frac{(3 \times 6) + (53 \times 3) + (79 \times 2)}{72} \right) \\ &= 9 - \left(\frac{18 + 159 + 158}{72} \right) \\ &= \frac{9}{1} - \frac{335}{72}\end{aligned}$$

The LCM of denominators 1 and 72 is 72.

$$\begin{aligned}\therefore \frac{9}{1} - \frac{335}{72} &= \frac{(9 \times 72) - 335}{72} = \frac{648 - 335}{72} \\ &= \frac{313}{72} = 4 \frac{25}{72}\end{aligned}$$

$$5. \frac{4}{18} + \frac{17}{6} + 3 \frac{4}{12} = \frac{4}{18} + \frac{17}{6} + \frac{40}{12}$$

The LCM of the denominators 18, 6 and 12 is 36.

$$\begin{aligned}\therefore \frac{4}{18} + \frac{17}{6} + \frac{40}{12} &= \frac{(4 \times 2) + (17 \times 6) + (40 \times 3)}{36} \\ &= \frac{8 + 102 + 120}{36} = \frac{230}{36} = \frac{115}{18}\end{aligned}$$

$$\therefore 13 \frac{1}{3} - \frac{115}{18} = \frac{40}{3} - \frac{115}{18}$$

The LCM of the denominators 3 and 18 is 18.

$$\begin{aligned}\therefore \frac{40}{3} - \frac{115}{18} &= \frac{(40 \times 6) - 115}{18} \\ &= \frac{240 - 115}{18} = \frac{125}{18}\end{aligned}$$

6. Fill in the blanks :

$$(a) \frac{4}{9} + \frac{5}{18} = \underline{\hspace{2cm}}$$

The LCM of denominators 9 and 18 is 18.

$$\therefore \frac{4}{9} + \frac{5}{18} = \frac{(4 \times 2) + 5}{18} = \frac{8 + 5}{18} = \frac{13}{18}$$

$$(b) \frac{6}{15} + \frac{9}{15} - \frac{11}{15} = \underline{\hspace{2cm}}$$

$$\begin{aligned}\Rightarrow \frac{6}{15} + \frac{9}{15} - \frac{11}{15} &= \frac{6 + 9 - 11}{15} \\ &= \frac{15 - 11}{15} = \frac{4}{15}\end{aligned}$$



Exercise 5H

1. Amit used of the paint once = $\frac{2}{7}L$

Amit used to paint his car next day = $\frac{4}{7}L$

Amit paint used in all = $\frac{2}{7} + \frac{4}{7} = \frac{2+4}{7} = \frac{6}{7}L$

2. Mala had strip of ribbon = 1

Mala cut off strip of ribbon = $\frac{5}{6}$

Ribbon left with Mala = $1 - \frac{5}{6} = \frac{1}{1} - \frac{5}{6}$
 $= \frac{(1 \times 6) - 5}{6} = \frac{6 - 5}{6} = \frac{1}{6}$

3. Riya using of rope = $5\frac{5}{7}m$

Rope left with Riya = $2\frac{3}{14}m$

Total length of rope = $5\frac{5}{7} + 2\frac{3}{14} = \frac{40}{7} + \frac{31}{14}$
 $= \frac{(40 \times 2) + 31}{14} = \frac{80 + 31}{14} = \frac{111}{14} = 7\frac{13}{14}m$

4. Nisha spending = ₹ $71\frac{1}{3}$

Rupees left with Nisha = ₹ $7\frac{2}{3}$

Total rupees = ₹ $71\frac{1}{3} + ₹ 7\frac{2}{3} = \frac{214}{3} + \frac{23}{3}$
 $= \frac{214 + 23}{3} = \frac{237}{3} = ₹ 79$

5. Shikha spent of her pocket money on a movie = $\frac{1}{2}$

Shikha spent of her pocket money on a new pen = $\frac{1}{4}$

Shikha spent of her pocket money together = $\frac{1}{2} + \frac{1}{4}$
 $= \frac{(1 \times 2) + 1}{4} = \frac{2 + 1}{4} = \frac{3}{4}$

6. Mrs. Arya bought of milk in the morning = 4 litres

Milk left in the evening with Mrs. Arya = $\frac{5}{8}$ litres

$$\begin{aligned}\text{Milk used during the day} &= 4 - \frac{5}{8} = \frac{4}{1} - \frac{5}{8} \\ &= \frac{(4 \times 8) - 5}{8} = \frac{32 - 5}{8} = \frac{27}{8} \text{ litres}\end{aligned}$$



Maths in Everyday Life

Observation, Curiosity

Nisha reads of a book daily = $\frac{1}{8}$

Asha reads of the same book daily = $\frac{2}{27}$

Nisha complete of book = $1 - \frac{1}{8} = \frac{(1 \times 8) - 1}{8} = \frac{8 - 1}{8} = \frac{7}{8}$

Asha complete of book = $1 - \frac{2}{27} = \frac{(1 \times 27) - 2}{27} = \frac{27 - 2}{27} = \frac{25}{27}$

$$\Rightarrow \frac{7}{8} = \frac{7 \times 27}{8 \times 27} = \frac{189}{216}; \quad \frac{25}{27} = \frac{25 \times 8}{27 \times 8} = \frac{200}{216}$$

\therefore Nisha will complete reading the entire book first.

Apply Your Learning

Critical and Logical Thinking, Applicative Thinking

Manu jogged on Friday = 35 minutes = $\frac{35}{60}$ hour (\because 1 hour = 60 minutes)

Manu jogged on Saturday = $\frac{1}{2}$ hour

Manu jogged on Sunday = $\frac{3}{4}$ hour

$$\frac{35}{60}, \frac{1}{2}, \frac{3}{4}$$

The LCM of denominators 60, 2 and 4 is 60.

$$\frac{1}{2} = \frac{1 \times 30}{2 \times 30} = \frac{30}{60}; \quad \frac{3}{4} = \frac{3 \times 15}{4 \times 15} = \frac{45}{60}$$

Durations in ascending order are: $\frac{30}{60}, \frac{35}{60}, \frac{45}{60}$

Think, Solve and Learn

Problem-solving, Observation

\therefore Shikha needs twelve halves of apples to serve her friends.

$$\text{Total apples} = \frac{12}{2} = 6 \text{ apples}$$

6

More On Fraction



Exercise 6A

1. Fill in the blanks :

$$(a) \frac{2}{7} + \frac{2}{7} + \frac{2}{7} + \frac{2}{7} = \frac{\square}{7}$$

$$\Rightarrow \frac{2+2+2+2}{7} = \frac{8}{7}$$

$$(c) 9 \text{ times } \frac{4}{11} = \frac{\square}{11}$$

$$9 \times \frac{4}{11} = \frac{36}{11}$$

$$(e) 11 \text{ times } 3\frac{1}{12} = \frac{\square}{\square}$$

$$11 \times \frac{37}{12} = \frac{11 \times 37}{12} = \frac{407}{12}$$

$$(b) \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{\square}{5}$$

$$\Rightarrow \frac{1+1+1+1+1+1+1}{5} = \frac{7}{5}$$

$$(d) 3 \text{ times } \frac{1}{7} = \frac{3}{\square}$$

$$3 \times \frac{1}{7} = \frac{3}{7}$$

Multiply the following :

$$2. (a) 4 \text{ by } \frac{3}{13} = 4 \times \frac{3}{13} = \frac{12}{13}$$

$$(c) 9 \text{ by } \frac{4}{15} = \frac{9 \times 4}{15}$$

$$= \frac{36}{15} = \frac{12}{5}$$

$$3. (a) \frac{3}{14} \text{ by } 8 = \frac{3}{14} \times 8$$

$$= \frac{24}{14} = \frac{12}{7}$$

$$(c) \frac{7}{48} \text{ by } 8 = \frac{7}{48} \times 8$$

$$= \frac{56}{48} = \frac{7}{6}$$

$$(b) 7 \text{ by } \frac{3}{27} = 7 \times \frac{3}{27} = \frac{21}{27} = \frac{7}{9}$$

$$(d) 16 \text{ by } \frac{7}{24} = 16 \times \frac{7}{24}$$

$$= \frac{112}{24} = \frac{14}{3}$$

$$(b) \frac{4}{22} \text{ by } 11 = \frac{4}{22} \times 11$$

$$= \frac{44}{22} = 2$$

$$(d) \frac{9}{36} \text{ by } 36 = \frac{9}{36} \times 36$$

$$= 9 \times 1 = 9$$

$$4. (a) \frac{9}{22} \times 33 = \frac{9 \times 33}{22} \\ = \frac{9 \times 3}{2} = \frac{27}{2}$$

$$(c) 18 \times \frac{9}{36} = \frac{18 \times 9}{36} \\ = \frac{1 \times 9}{2} = \frac{9}{2}$$

$$5. (a) \frac{8}{15} \times 15 = \frac{8 \times 15}{15} \\ = 8 \times 1 = 8$$

$$(c) \frac{7}{21} \times 105 = \frac{7 \times 105}{21} \\ = 7 \times 5 = 35$$

$$6. (a) 0 \times \frac{20}{100} = 0$$

$$(c) \frac{15}{16} \times 1 = \frac{15 \times 1}{16} \\ = \frac{15}{16}$$

$$7. (a) \frac{31}{5} \times 10 = \frac{31 \times 10}{5} \\ = 31 \times 2 = 62$$

$$(c) 3 \times 2 \frac{1}{15} = 3 \times \frac{31}{15} \\ = \frac{3 \times 31}{15} = \frac{31}{5}$$

$$(b) \frac{16}{20} \times 12 = \frac{16 \times 12}{20} \\ = \frac{4 \times 12}{5} = \frac{48}{5}$$

$$(d) 91 \times \frac{4}{13} = \frac{91 \times 4}{13} \\ = 7 \times 4 = 28$$

$$(b) \frac{3}{27} \times 14 = \frac{3 \times 14}{27} \\ = \frac{14}{9}$$

$$(d) \frac{51}{112} \times 32 = \frac{51 \times 32}{112} \\ = \frac{51 \times 2}{7} = \frac{102}{7}$$

$$(b) \frac{31}{90} \times 0 = 0$$

$$(d) 1 \times \frac{18}{30} = \frac{1 \times 18}{30} \\ = \frac{3}{5}$$

$$(b) 5 \frac{1}{8} \times 3 = \frac{41}{8} \times 3 \\ = \frac{41 \times 3}{8} = \frac{123}{8}$$

$$(d) 24 \times 2 \frac{1}{5} = 24 \times \frac{11}{5} \\ = \frac{24 \times 11}{5} = \frac{264}{5}$$



Exercise 6B

1. Fill in the blanks :

$$(a) \frac{7}{8} \times \frac{1}{2} = \frac{1}{2} \times \boxed{\frac{7}{8}} = \frac{7}{16}$$

$$(b) \frac{5}{6} \times 12 = \boxed{12} \times \frac{5}{6}$$

$$(c) \left(\frac{2}{3} \times \frac{3}{4} \right) \times \frac{1}{3} = \frac{2}{3} \left(\boxed{\frac{3}{4}} \times \frac{1}{3} \right)$$

Multiply the following :

2. (a) $\frac{1}{3} \times \frac{4}{5} = \frac{4}{15}$ (b) $\frac{12}{23} \times \frac{5}{6} = \frac{12 \times 5}{23 \times 6} = \frac{2 \times 5}{23} = \frac{10}{23}$
- (c) $\frac{3}{7} \times \frac{27}{45} = \frac{3 \times 27}{7 \times 45} = \frac{9}{7 \times 5} = \frac{9}{35}$
3. (a) $3\frac{1}{2} \times 6 = \frac{7 \times 6}{2}$ (b) $3\frac{3}{7} \times 14 = \frac{24}{7} \times 14$
- $= 7 \times 3 = 21$ $= 24 \times 2 = 48$
- (c) $5\frac{1}{9} \times 12 = \frac{46}{9} \times 12 = \frac{46 \times 4}{3} = \frac{184}{3}$
4. (a) $\frac{5}{2} \times \frac{7}{11} = \frac{35}{22}$ (b) $\frac{9}{24} \times \frac{4}{3} = \frac{9 \times 4}{24 \times 3} = \frac{3}{6} = \frac{1}{2}$
- (c) $\frac{5}{4} \times \frac{16}{20} = \frac{5 \times 16}{4 \times 20} = \frac{4}{4} = 1$
5. (a) $6\frac{1}{3} \times \frac{19}{18} = \frac{19}{3} \times \frac{19}{18}$ (b) $5\frac{8}{3} \times \frac{12}{13} = \frac{23}{3} \times \frac{12}{13}$
- $= \frac{361}{54} = 6\frac{37}{54}$ $= \frac{23 \times 4}{13} = \frac{92}{13} = 7\frac{1}{13}$
- (c) $3\frac{2}{10} \times \frac{15}{20} = \frac{32}{10} \times \frac{15}{20} = \frac{4 \times 3}{5} = \frac{12}{5} = 2\frac{2}{5}$
6. (a) $\frac{3}{13} \times 1\frac{1}{6} = \frac{3}{13} \times \frac{7}{6}$ (b) $\frac{5}{14} \times 3\frac{1}{5} = \frac{5}{14} \times \frac{16}{5}$
- $= \frac{7}{13 \times 2} = \frac{7}{26}$ $= \frac{8}{7} = 1\frac{1}{7}$
- (c) $\frac{8}{50} \times 7\frac{1}{3} = \frac{8}{50} \times \frac{22}{3} = \frac{8 \times 11}{25 \times 3}$
- $= \frac{88}{75} = 1\frac{13}{75}$
7. (a) $3\frac{1}{12} \times 15 = \frac{37}{12} \times 15$ (b) $6\frac{3}{8} \times 11 = \frac{51}{8} \times 11$
- $= \frac{37 \times 5}{4} = \frac{185}{4}$ $= \frac{561}{8} = 70\frac{1}{8}$
- $= 46\frac{1}{4}$
- (c) $39 \times 4\frac{8}{13} = 39 \times \frac{60}{13} = 3 \times 60 = 180$

$$\begin{aligned}
 8. \quad (a) \quad 2\frac{1}{4} \times 2\frac{1}{3} &= \frac{9}{4} \times \frac{7}{3} \\
 &= \frac{3 \times 7}{4} = \frac{21}{4} = 5\frac{1}{4} \\
 (b) \quad 3\frac{1}{4} \times 3\frac{1}{3} &= \frac{13}{4} \times \frac{10}{3} \\
 &= \frac{13 \times 5}{2 \times 3} = \frac{65}{6} = 10\frac{5}{6} \\
 (c) \quad 3\frac{7}{5} \times 7\frac{2}{19} &= \frac{22}{5} \times \frac{135}{19} \\
 &= \frac{22 \times 27}{19} = \frac{594}{19} = 31\frac{5}{19}
 \end{aligned}$$

Find the product and write the answer in lowest form :

$$\begin{aligned}
 9. \quad 5 \times 2\frac{1}{10} &= 5 \times \frac{21}{10} \\
 &= \frac{21}{2} = 10\frac{1}{2} \\
 10. \quad 3 \times 2\frac{1}{15} &= 3 \times \frac{31}{15} \\
 &= \frac{31}{5} = 6\frac{1}{5} \\
 11. \quad 6\frac{1}{16} \times 33 &= \frac{97}{16} \times 33 \\
 &= \frac{3201}{16} = 200\frac{1}{16} \\
 12. \quad \frac{9}{11} \times 22 &= \frac{9}{11} \times 22 \\
 &= 9 \times 2 = 18 \\
 13. \quad 6\frac{2}{3} \times 1\frac{9}{10} &= \frac{20}{3} \times \frac{19}{10} \\
 &= \frac{2 \times 19}{3} = \frac{38}{3} = 12\frac{2}{3} \\
 14. \quad \frac{3}{4} \times \frac{6}{15} &= \frac{3}{4} \times \frac{6}{15} \\
 &= \frac{1 \times 3}{2 \times 5} = \frac{3}{10} \\
 15. \quad \frac{5}{11} \times 9\frac{1}{5} &= \frac{5}{11} \times \frac{46}{5} \\
 &= \frac{46}{11} = 4\frac{2}{11} \\
 16. \quad 11\frac{1}{5} \times 2\frac{17}{28} &= \frac{56}{5} \times \frac{73}{28} \\
 &= \frac{73 \times 2}{5} = \frac{146}{5} = 29\frac{1}{5}
 \end{aligned}$$



Exercise 6C

Find the following :

$$\begin{aligned}
 1. \quad (a) \quad \frac{1}{4} \text{ of } 24 &= \frac{1}{4} \times 24 \\
 &= 1 \times 6 = 6 \\
 (b) \quad \frac{2}{5} \text{ of } 45 &= \frac{2}{5} \times 45 \\
 &= 2 \times 9 = 18 \\
 (c) \quad \frac{3}{8} \text{ of } 56 &= \frac{3}{8} \times 56 \\
 &= 3 \times 7 = 21 \\
 (d) \quad \frac{9}{13} \text{ of } 65 &= \frac{9}{13} \times 65 \\
 &= 9 \times 5 = 45
 \end{aligned}$$

$$\begin{aligned} 2. \quad (a) \quad \frac{1}{3} \text{ of } \frac{3}{8} &= \frac{1}{3} \times \frac{3}{8} \\ &= \frac{1}{8} \end{aligned}$$

$$\begin{aligned} (b) \quad \frac{4}{5} \text{ of } \frac{15}{39} &= \frac{4}{5} \times \frac{15}{39} \\ &= \frac{4}{13} \end{aligned}$$

$$\begin{aligned} (c) \quad \frac{4}{3} \text{ of } 2\frac{2}{3} &= \frac{4}{3} \times \frac{8}{3} \\ &= \frac{32}{9} \end{aligned}$$

$$\begin{aligned} (d) \quad 2\frac{3}{10} \text{ of } 30 &= \frac{23}{10} \times 30 \\ &= 23 \times 3 = 69 \end{aligned}$$

Fill in the blanks :

$$3. \quad (a) \quad \frac{1}{5} \text{ of a rupee} = \underline{\hspace{2cm}} \text{ paise.}$$

$$\therefore \quad \frac{1}{5} \times 100 \text{ paise} \quad (\because 1 \text{ rupee} = 100 \text{ paise})$$

$$1 \times 20 \text{ paise} = 20 \text{ paise}$$

$$(b) \quad \frac{3}{8} \text{ of ₹ } 16 = \text{₹ } \underline{\hspace{2cm}} .$$

$$\frac{3}{8} \times \text{₹ } 16 = 3 \times \text{₹ } 2 = \text{₹ } 6$$

$$(c) \quad \frac{3}{5} \text{ of a rupee} = \underline{\hspace{2cm}} \text{ paise.}$$

$$\therefore \quad \frac{3}{5} \times 100 \text{ paise} \quad (\because 1 \text{ rupee} = 100 \text{ paise})$$

$$3 \times 20 \text{ paise} = 60 \text{ paise}$$

$$(d) \quad \frac{9}{10} \text{ of ₹ } 50 = \text{₹ } \underline{\hspace{2cm}} .$$

$$\frac{9}{10} \times \text{₹ } 50 = 9 \times \text{₹ } 5$$

$$= \text{₹ } 45$$

$$4. \quad (a) \quad \frac{3}{4} \text{ of a kg} = \underline{\hspace{2cm}} \text{ g} \quad (b) \quad \frac{5}{9} \text{ of } 54 \text{ kg} = \underline{\hspace{2cm}} \text{ kg}$$

$$(\because 1 \text{ kg} = 1000 \text{ g})$$

$$\frac{5}{9} \times 54 \text{ kg} = 5 \times 6 \text{ kg}$$

$$\therefore \quad \frac{3}{4} \times 1000 \text{ g} = 3 \times 250 \text{ g}$$

$$= 30 \text{ kg}$$

$$= 750 \text{ g}$$

$$(c) \frac{8}{15} \text{ of } 75 \text{ kg} = \underline{\hspace{2cm}} \text{ g} \quad (d) \frac{5}{45} \text{ of } 90 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$$

$$\frac{8}{15} \times 75 \text{ kg} = 8 \times 5 \text{ kg}$$

$$\frac{5}{45} \times 90 \text{ kg} = 5 \times 2 \text{ kg}$$

$$= 40 \text{ kg}$$

$$= 10 \text{ kg}$$

$$\therefore 1 \text{ kg} = 1000 \text{ g}$$

$$\therefore 1 \text{ kg} = 1000 \text{ g}$$

$$\therefore 40 \text{ kg} = 40 \times 1000 \text{ g}$$

$$\therefore 10 \text{ kg} = 10 \times 1000 \text{ g}$$

$$= 40,000 \text{ g}$$

$$= 10,000 \text{ g}$$

$$5. (a) \frac{10}{20} \text{ of } 1 \text{ litre} = \underline{\hspace{2cm}} \text{ mL} \quad (b) \frac{3}{15} \text{ of } 45 \text{ L} = \underline{\hspace{2cm}} \text{ L}$$

$$\therefore 1 \text{ litre} = 1000 \text{ mL}$$

$$\frac{3}{15} \times 45 \text{ L} = 3 \times 3 \text{ L}$$

$$\therefore \frac{10}{20} \times 1000 \text{ mL} = 10 \times 50 \text{ mL}$$

$$= 9 \text{ L}$$

$$= 500 \text{ mL}$$

$$(c) \frac{1}{10} \text{ of } 1 \text{ L} = \underline{\hspace{2cm}} \text{ mL} \quad (d) \frac{7}{10} \text{ of } 5 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$$

$$\therefore 1 \text{ L} = 1000 \text{ mL}$$

$$\therefore 1 \text{ L} = 1000 \text{ mL}$$

$$\therefore \frac{1}{10} \times 1000 \text{ mL} = 1 \times 100 \text{ mL}$$

$$\therefore \frac{7}{10} \times 5 \times 1000 \text{ mL} = 7 \times 5 \times 100 \text{ mL}$$

$$= 100 \text{ mL}$$

$$= 3500 \text{ mL}$$

$$6. (a) \frac{8}{10} \text{ of } 1 \text{ km} = \underline{\hspace{2cm}} \text{ m} \quad (b) \frac{4}{45} \text{ of } 9 \text{ metre} = \underline{\hspace{2cm}} \text{ cm}$$

$$\therefore 1 \text{ km} = 1000 \text{ m}$$

$$\therefore 1 \text{ metre} = 100 \text{ cm}$$

$$\therefore \frac{8}{10} \times 1000 \text{ m} = 8 \times 100 \text{ m}$$

$$\therefore \frac{4}{45} \times 9 \times 100 \text{ cm} = \frac{4}{45} \times 900 \text{ cm}$$

$$= 800 \text{ m}$$

$$= 4 \times 20 \text{ cm}$$

$$= 80 \text{ cm}$$

$$(c) \frac{3}{15} \text{ of } 90 \text{ km} = \underline{\hspace{2cm}} \text{ m} \quad (d) \frac{2}{9} \text{ of } 180 \text{ m} = \underline{\hspace{2cm}} \text{ m}$$

$$\frac{3}{15} \times 90 \text{ km} = 3 \times 6 \text{ km}$$

$$\frac{2}{9} \times 180 \text{ m} = 2 \times 20 \text{ m}$$

$$= 18 \text{ km}$$

$$= 40 \text{ m}$$

$$\therefore 1 \text{ km} = 1000 \text{ m}$$

$$\therefore 18 \text{ km} = 18 \times 1000 \text{ m}$$

$$= 18000 \text{ m}$$



Exercise 6D

Find the multiplicative inverse of :

- $\frac{5}{3} = \frac{1}{\frac{3}{5}} = \frac{3}{5}$
 - $\frac{3}{2} = \frac{1}{\frac{2}{3}} = \frac{3}{2}$
 - $\frac{8}{7} = \frac{1}{\frac{7}{8}} = \frac{8}{7}$
 - $\frac{5}{12} = \frac{1}{\frac{12}{5}} = \frac{5}{12}$
 - $\frac{8}{1} = \frac{1}{\frac{1}{8}} = \frac{8}{1}$
- $3\frac{2}{3} = \frac{11}{3} = \frac{1}{\frac{3}{11}} = \frac{11}{3}$
 - $3\frac{1}{5} = \frac{16}{5} = \frac{1}{\frac{5}{16}} = \frac{16}{5}$
 - $5\frac{4}{7} = \frac{39}{7} = \frac{1}{\frac{7}{39}} = \frac{39}{7}$
 - $1 = 1$
 - $0 = 0$

3. Fill in the blanks :

$$(a) \frac{3}{17} \times \frac{17}{3} = 1 \quad (b) \frac{6}{22} \times 3\frac{4}{6} = 1 \quad (c) \frac{7}{23} \times \frac{23}{7} = 1$$

4. Complete the following division :

$$(a) 0 \div \frac{8}{17} = 0 \quad (b) \frac{9}{7} \div \frac{9}{7} = 1 \quad (c) \frac{6}{5} \div \frac{6}{5} = 1$$

$$(d) 3\frac{1}{2} \div 1 = 3\frac{1}{2} \quad (e) 0 \div \frac{3}{5} = 0 \quad (f) 1 \div \frac{9}{11} = \frac{11}{9}$$

Divide and find the quotient in lowest term :

- $\frac{1}{5} \text{ by } 3 = \frac{1}{5} \div 3$
 $= \frac{1}{5} \times \frac{1}{3} = \frac{1}{15}$
 - $\frac{2}{6} \text{ by } 4 = \frac{2}{6} \div 4$
 $= \frac{2}{6} \times \frac{1}{4} = \frac{1 \times 1}{6 \times 2} = \frac{1}{12}$
 - $\frac{9}{16} \text{ by } 9 = \frac{9}{16} \div 9 = \frac{9}{16} \times \frac{1}{9} = \frac{1}{16}$
- $3 \text{ by } \frac{12}{10} = 3 \div \frac{12}{10}$
 $= 3 \times \frac{10}{12} = \frac{5}{2}$
 - $8 \text{ by } \frac{4}{17} = 8 \div \frac{4}{17}$
 $= 8 \times \frac{17}{4} = 2 \times 17 = 34$

$$(c) 18 \text{ by } \frac{5}{15} = 18 \div \frac{5}{15} = 18 \times \frac{15}{5} = 18 \times 3 = 54$$

$$7. (a) \frac{2}{6} \div \frac{1}{3} = \frac{2}{6} \times \frac{3}{1} \\ = \frac{6}{6} = 1$$

$$(b) \frac{3}{7} \div 6 = \frac{3}{7} \times \frac{1}{6} \\ = \frac{1 \times 1}{7 \times 2} = \frac{1}{14}$$

$$(c) \frac{7}{14} \div 7 = \frac{7}{14} \times \frac{1}{7} = \frac{1}{14}$$

$$8. (a) 2 \frac{2}{7} \div \frac{9}{7} = \frac{16}{7} \div \frac{9}{7} \\ = \frac{16}{7} \times \frac{7}{9} \\ = \frac{16}{9}$$

$$(b) 5 \frac{5}{12} \div \frac{5}{16} = \frac{65}{12} \div \frac{5}{16} \\ = \frac{65}{12} \times \frac{16}{5} \\ = \frac{13 \times 4}{3 \times 1} = \frac{52}{3} = 17 \frac{1}{3}$$

$$(c) 9 \frac{3}{8} \div \frac{5}{34} = \frac{75}{8} \div \frac{5}{34} = \frac{75}{8} \times \frac{34}{5} \\ = \frac{15 \times 17}{4} = \frac{255}{4} = 63 \frac{3}{4}$$

$$9. (a) \frac{3}{14} \div 7 \frac{3}{7} = \frac{3}{14} \div \frac{52}{7} \\ = \frac{3}{14} \times \frac{7}{52} \\ = \frac{3 \times 1}{2 \times 52} = \frac{3}{104}$$

$$(b) \frac{3}{27} \div 3 \frac{1}{9} = \frac{3}{27} \div \frac{28}{9} \\ = \frac{3}{27} \times \frac{9}{28} \\ = \frac{1}{28}$$

$$(c) \frac{10}{44} \div 2 \frac{6}{11} = \frac{10}{44} \div \frac{28}{11} \\ = \frac{10}{44} \times \frac{11}{28} \\ = \frac{5 \times 1}{2 \times 28} = \frac{5}{56}$$

$$10. (a) 3 \frac{2}{8} \div 2 \frac{1}{4} = \frac{26}{8} \div \frac{9}{4} \\ = \frac{26}{8} \times \frac{4}{9} \\ = \frac{26 \times 1}{2 \times 9} = \frac{13}{9}$$

$$(b) 6 \frac{3}{5} \div 5 \frac{1}{3} = \frac{33}{5} \div \frac{16}{3} \\ = \frac{33}{5} \times \frac{3}{16} \\ = \frac{99}{80}$$

$$(c) 10\frac{1}{3} \div 4\frac{2}{3} = \frac{31}{3} \div \frac{14}{3} = \frac{31}{3} \times \frac{3}{14} = \frac{31}{14}$$

$$11. (a) 6\frac{3}{5} \div 18 = \frac{33}{5} \div 18$$

$$= \frac{33}{5} \times \frac{1}{18}$$

$$= \frac{11 \times 1}{5 \times 6} = \frac{11}{30}$$

$$(b) 21\frac{1}{5} \div 7 = \frac{106}{5} \div 7$$

$$= \frac{106}{5} \times \frac{1}{7}$$

$$= \frac{106}{35} = 3\frac{1}{35}$$

$$(c) 15 \div 1\frac{1}{5} = 15 \div \frac{6}{5}$$

$$= 15 \times \frac{5}{6} = \frac{5 \times 5}{2} = \frac{25}{2} = 12\frac{1}{2}$$

Divide the following :

$$12. \frac{3}{15} \div 15 = \frac{3}{15} \times \frac{1}{15}$$

$$= \frac{1}{15} \times \frac{1}{5} = \frac{1}{75}$$

$$13. 48 \div \frac{8}{21} = 48 \times \frac{21}{8}$$

$$= 6 \times 21 = 126$$

$$14. 20 \div 5\frac{1}{4} = 20 \div \frac{21}{4}$$

$$= 20 \times \frac{4}{21}$$

$$= \frac{80}{21} = 3\frac{17}{21}$$

$$15. 7\frac{1}{10} \div \frac{9}{40} = \frac{71}{10} \div \frac{9}{40}$$

$$= \frac{71}{10} \times \frac{40}{9}$$

$$= \frac{71 \times 4}{1 \times 9} = \frac{284}{9} = 31\frac{5}{9}$$

$$16. \frac{24}{50} \div 4\frac{1}{15} = \frac{24}{50} \div \frac{61}{15}$$

$$= \frac{24}{50} \times \frac{15}{61}$$

$$= \frac{12 \times 3}{5 \times 61} = \frac{36}{305}$$

$$17. 55 \div 3\frac{3}{5} = 55 \div \frac{18}{5}$$

$$= 55 \times \frac{5}{18}$$

$$= \frac{275}{18} = 15\frac{5}{18}$$

$$18. 16\frac{1}{2} \div 5\frac{1}{8} = \frac{33}{2} \div \frac{41}{8}$$

$$= \frac{33}{2} \times \frac{8}{41}$$

$$= \frac{33 \times 4}{1 \times 41} = \frac{132}{41} = 3\frac{9}{41}$$

$$19. 21 \div 4\frac{1}{5} = 21 \div \frac{21}{5}$$

$$= 21 \times \frac{5}{21}$$

$$= 1 \times 5 = 5$$

$$20. \quad 7\frac{3}{5} \div 19 = \frac{38}{5} \div 19$$

$$= \frac{38}{5} \times \frac{1}{19} = \frac{2}{5}$$



Exercise 6E

1. Monu reaches school by passing distance every day = $4\frac{1}{5}$ km

Monu goes to school in a month = 25 days

Total distance covers in a month = $4\frac{1}{5} \times 25$ km

$$= \frac{21}{5} \times 25 \text{ km}$$

$$= 21 \times 5 \text{ km} = 105 \text{ km}$$

2. In a hotel, average guest in a day = 150

The guests of female = $\frac{12}{15}$

The fraction for male guests = $1 - \frac{12}{15}$

$$= \frac{(1 \times 15) - 12}{15} = \frac{15 - 12}{15} = \frac{3}{15} = \frac{1}{5}$$

3. Paint required to colour 1 square metre of a room = $2\frac{1}{3}$ L

Paint required to colour $2\frac{1}{6}$ square metre of the room = $2\frac{1}{3} \text{ L} \times 2\frac{1}{6}$

$$= \frac{7}{3} \times \frac{13}{6} \text{ L}$$

$$= \frac{91}{18} \text{ L} = 5\frac{1}{18} \text{ L}$$

4. The product of two fractions = 8

One fractions = $\frac{3}{16}$

$$\text{Other fractions} = 8 \div \frac{3}{16} = 8 \times \frac{16}{3} = \frac{128}{3}$$

5. $\frac{6}{5} \div 4\frac{7}{10} = \frac{6}{5} \div \frac{47}{10} = \frac{6}{5} \times \frac{10}{47} = \frac{6 \times 2}{1 \times 47} = \frac{12}{47}$

6. $3 \div \frac{1}{6} = 3 \times 6 = 18$

7. Mohit went to buy of vegetables = 5 kg

Mohit get two packets of vegetables = $\frac{3}{4}$ kg

Rest of the vegetable = $\frac{1}{2}$ kg

$$\therefore 5 \text{ kg} - \left(2 \times \frac{3}{4} \text{ kg}\right) = 5 \text{ kg} - \frac{6}{4} \text{ kg}$$

$$= \frac{20-6}{4} \text{ kg} = \frac{14}{4} \text{ kg}$$

$$\therefore \frac{14}{4} \text{ kg} \div \frac{1}{2} \text{ kg} = \frac{14}{4} \times \frac{2}{1} = \frac{28}{4} = 7$$

\therefore Number of $\frac{1}{2}$ kg packets = 7

8. Tanu had = ₹ 60

Tanu spends = $\frac{3}{15}$

(a) Tanu spent money = $\frac{3}{15} \times ₹ 60 = ₹ \frac{180}{15} = ₹ 12$

(b) Money left = ₹ 60 – ₹ 12 = ₹ 48



Maths in Everyday Life

Observation, Interpersonal Skills

Do yourself.

Apply Your Learning

Critical and Logical Thinking, Applicative Thinking

Shivani bought to bake a cake for a party = 6 kg

Shivani kept of a side = $\frac{2}{3}$

Remaining flour = $6 - \frac{2}{3} = \frac{(6 \times 3) - 2}{3} = \frac{18 - 2}{3} = \frac{16}{3}$

Divided the remaining flour into two equal parts = $\frac{16}{3} \div 2 = \frac{16}{3} \times \frac{1}{2} = \frac{8}{3}$

\therefore Flour in each part = $\frac{8}{3}$

Think, Solve and Learn

Problem-solving, Observation, Integrate with Arts

Do yourself.



Decimals



Exercise 7

1. Differentiate the Integral and Decimal part :

(a) 9.7

Integral part = 9, Decimal part = 7

(b) 3.86

Integral part = 3, Decimal part = 86

(c) 05.054

Integral part = 5, Decimal part = 054

(d) 751.673

Integral part = 751, Decimal part = 673

(e) 5100.1272

Integral part = 5100, Decimal part = 1272

2. Write the following as common fraction :

(a) $0.34 = \frac{34}{100}$

(b) $0.546 = \frac{546}{1000}$

(c) $0.029 = \frac{29}{1000}$

(d) $0.0451 = \frac{451}{10000}$

(e) $4.8 = \frac{48}{10}$

(f) $6.07 = \frac{607}{100}$

3. Write as decimal fraction :

(a) $\frac{37}{10} = 3.7$

(b) $\frac{301}{10} = 30.1$

(c) $\frac{91}{100} = 0.91$

(d) $\frac{251}{100} = 2.51$

(e) $\frac{302}{100} = 3.02$

(f) $\frac{705}{1000} = 0.705$

$$(g) \frac{1001}{10000} = \mathbf{0.1001}$$

$$(h) \frac{70501}{10000} = \mathbf{7.0501}$$

$$(i) \frac{12345}{10000} = \mathbf{1.2345}$$

4. Write in the short form :

$$(a) \text{ 7 tens} + \text{2 ones} + \text{5 tenths} + \text{6 hundredths} = \mathbf{72.56}$$

$$(b) \text{ 5 ones} + \text{6 tenths} + \text{5 hundredths} + \text{6 thousands} = \mathbf{56.056}$$

$$(c) \text{ 9 hundreds} + \text{9 tens} + \text{9 ones} + \text{9 tenths} + \text{9 hundredths} + \text{9 thousands} = \mathbf{999.999}$$

5. Write in Decimal form :

$$(a) 2 + \frac{5}{10} + \frac{3}{100} = \mathbf{2.53}$$

$$(b) 40 + 9 + \frac{2}{10} + \frac{7}{100} = \mathbf{49.27}$$

$$(c) 40 + 8 + \frac{0}{10} + \frac{0}{100} + \frac{5}{1000} = \mathbf{48.005}$$

$$(d) 6 + \frac{0}{10} + \frac{4}{100} + \frac{9}{1000} = \mathbf{6.049}$$

6. Fill in the blanks :

$$(a) 3.87 = \mathbf{3} \text{ one} + \mathbf{8} \text{ tenths} + \mathbf{7} \text{ hundredths}$$

$$(b) 49.056 = \mathbf{4} \text{ tens} + \mathbf{9} \text{ ones} + \mathbf{0} \text{ tenths} + \mathbf{5} \text{ hundredths} + \mathbf{6} \text{ thousandths}$$

$$(c) 321.056 = \mathbf{3} \text{ hundreds} + \mathbf{2} \text{ tens} + \mathbf{1} \text{ ones} + \mathbf{0} \text{ tenths} + \mathbf{5} \text{ hundredths} + \mathbf{6} \text{ thousandths}$$

7. Write in the expanded form : [HINT : Write decimal part as common fraction]

$$(a) 6.9 = 6 + \frac{9}{10}$$

$$(b) 3.58 = 3 + \frac{5}{10} + \frac{8}{100}$$

$$(c) 65.245 = 60 + 5 + \frac{2}{10} + \frac{4}{100} + \frac{5}{1000}$$

$$(d) 38.83 = 30 + 8 + \frac{8}{10} + \frac{3}{100}$$

$$(e) 540.703 = 500 + 40 + 0 + \frac{7}{10} + \frac{0}{100} + \frac{3}{1000}$$

8. Fill in the blanks with place value :

(a) $231.54 = \textcircled{2} 200 \quad \textcircled{3} 30 \quad \textcircled{5} \frac{5}{10} \quad \textcircled{4} \frac{4}{100}$

(b) $39.876 = \textcircled{3} 30 \quad \textcircled{6} \frac{6}{1000} \quad \textcircled{7} \frac{7}{100} \quad \textcircled{8} \frac{8}{10}$

(c) $55.639 = \textcircled{9} \frac{9}{1000} \quad \textcircled{6} \frac{6}{10} \quad \textcircled{3} \frac{3}{100} \quad \textcircled{5} 50$

(d) $386.541 = \textcircled{1} \frac{1}{1000} \quad \textcircled{4} \frac{4}{100} \quad \textcircled{5} \frac{5}{10} \quad \textcircled{6} 6$

(e) $0.0987 = \textcircled{7} \frac{7}{10000} \quad \textcircled{8} \frac{8}{1000} \quad \textcircled{9} \frac{9}{100}$

9. Write in Ascending order :

(a) 3.7, 3.07, 3.71, 3.007, 3.781

$3.007, 3.07, 3.7, 3.71, 3.781$

(b) 31.3, 30.21, 301.01, 30.2101, 30.03

$30.03, 30.21, 30.2101, 31.3, 301.01$

10. Arrange in Descending order :

(a) 0.080, 0.0087, 0.88, 0.0888

$0.88, 0.0888, 0.080, 0.0087$

(b) 13.335, 0.1335, 133.35, 1.3335

$133.35, 13.335, 1.3335, 0.1335$

11. Add : $7.83 + 4.18$

$$\begin{array}{r} 7.83 \\ + 4.18 \\ \hline 12.01 \end{array}$$

12. Subtract : 28.35 from 35.24

$$\begin{array}{r} 35.24 \\ - 28.35 \\ \hline 06.89 \end{array}$$

13. Multiply : 26.3 by 5

$$\begin{array}{r} 26.3 \\ \times 5 \\ \hline 131.5 \end{array}$$

$\therefore 26.3 \times 5 = 131.5$

14. Divide : 49.76 by 16

$$\begin{array}{r} 3.11 \\ 16 \overline{) 49.76} \\ \underline{-48} \\ 17 \\ \underline{-16} \\ 16 \\ \underline{-16} \\ 0 \end{array}$$

$\therefore 49.76 \div 16 = 3.11$



Number of beads = 100

Red beads = 20

Blue beads = 45

Yellow beads = 25

The remaining beads of green = $100 - (20 + 45 + 25)$

$$= 100 - 90 = 10$$

The decimal fraction of red beads = $\frac{20}{100} = \frac{1}{5}$

The decimal fraction of blue beads = $\frac{45}{100} = \frac{9}{20}$

The decimal fraction of yellow beads = $\frac{25}{100} = \frac{1}{4}$

The decimal fraction of green beads = $\frac{10}{100} = \frac{1}{10}$

Apply Your Learning

Critical and Logical thinking, Observation

The decimal number = 4562.89

Place value chart = $4000 + 500 + 60 + 2 + \frac{8}{10} + \frac{9}{100}$

Think, Solve and Learn

Problem-solving, Observation

Do yourself.



Operations With Decimals



Exercise 8A

Add the following :

1. (a)

$$\begin{array}{r} 0.58 \\ + 2.489 \\ \hline 3.069 \end{array}$$

(b)

$$\begin{array}{r} 5.793 \\ + 1.25 \\ \hline 7.043 \end{array}$$

(c)

$$\begin{array}{r} 99.173 \\ + 63.685 \\ \hline 162.858 \end{array}$$

(d)

$$\begin{array}{r} 234.692 \\ + 554.745 \\ \hline 789.437 \end{array}$$

2. (a)

$$\begin{array}{r} 12.568 \\ + 24.952 \\ + 8.107 \\ + 39.25 \\ \hline 84.877 \end{array}$$

(b)

$$\begin{array}{r} 285.123 \\ + 25.25 \\ + 379.068 \\ + 414.34 \\ \hline 1103.781 \end{array}$$

(c)

$$\begin{array}{r} 1.1027 \\ + 1.1045 \\ + 3.204 \\ + 3.96 \\ \hline 9.3712 \end{array}$$

(d)

$$\begin{array}{r} 52.148 \\ + 62.195 \\ + 91.521 \\ + 475.624 \\ \hline 681.488 \end{array}$$

3. (a) $0.375 + 0.425$

$$\begin{array}{r} 0.375 \\ + 0.425 \\ \hline 0.800 \end{array}$$

(b) $1.001 + 1.92 + 1.00192$

$$\begin{array}{r} 1.001 \\ + 1.92 \\ + 1.00192 \\ \hline 3.92292 \end{array}$$

$$\therefore 0.375 + 0.425 = 0.800$$

$$\therefore 1.001 + 1.92 + 1.00192 = 3.92292$$

4. (a) ₹ 11.14 + ₹ 0.85 + ₹ 28.45 (b) 2.250 kg + 3.425 kg + 1.70 kg

$$\begin{array}{r} 11.14 \\ + 0.85 \\ + 28.45 \\ \hline 40.44 \end{array}$$

$$\begin{array}{r} 2.250 \\ + 3.425 \\ + 1.70 \\ \hline 7.375 \end{array}$$

$$\therefore ₹ 11.14 + ₹ 0.85 + ₹ 28.45$$

$$= ₹ 40.44$$

$$\therefore 2.250 \text{ kg} + 3.425 \text{ kg} + 1.70 \text{ kg}$$

$$= 7.375 \text{ kg}$$

5. Subtract the following :

(a)
$$\begin{array}{r} 0.489 \\ - 0.297 \\ \hline 0.192 \end{array}$$

(b)
$$\begin{array}{r} 42.602 \\ - 24.601 \\ \hline 18.001 \end{array}$$

(c)
$$\begin{array}{r} 763.1 \\ - 459.0 \\ \hline 304.1 \end{array}$$

(d)
$$\begin{array}{r} 539.400 \\ - 396.214 \\ \hline 143.186 \end{array}$$

6. (a) $3.4 - 2.40$

$$\begin{array}{r} 3.4 \\ - 2.40 \\ \hline 1.00 \end{array}$$

$$\therefore 3.4 - 2.40 = 1.00$$

- (b) $14.35 - 8.57$

$$\begin{array}{r} 14.35 \\ - 8.57 \\ \hline 05.78 \end{array}$$

$$\therefore 14.35 - 8.57 = 5.78$$

- (c) $400.125 - 386.45$

$$\begin{array}{r} 400.125 \\ - 386.45 \\ \hline 013.675 \end{array}$$

$$\therefore 400.125 - 386.45 = 13.675$$

- (d) $187.5 - 98.745$

$$\begin{array}{r} 187.500 \\ - 98.745 \\ \hline 088.755 \end{array}$$

$$\therefore 187.5 - 98.745 = 88.755$$

7. (a) ₹ 840.25 - ₹ 75.25

$$\begin{array}{r} 840.25 \\ - 75.25 \\ \hline 765.00 \end{array}$$

$$\therefore ₹ 840.25 - ₹ 75.25 = ₹ 765$$

- (b) ₹ 100 - ₹ 75.25

$$\begin{array}{r} 100.00 \\ - 75.25 \\ \hline 24.75 \end{array}$$

$$\therefore ₹ 100 - ₹ 75.25 = ₹ 24.75$$

(c) ₹ 145.62 – ₹ 87

$$\begin{array}{r} 145.62 \\ - 87.00 \\ \hline 58.62 \end{array}$$

$$\begin{aligned} \therefore ₹ 145.62 - ₹ 87 \\ = ₹ 58.62 \end{aligned}$$

(d) 3.450 L – 2.975 L

$$\begin{array}{r} 3.450 \\ - 2.975 \\ \hline 0.475 \end{array}$$

$$\therefore 3.450 \text{ L} - 2.975 \text{ L} = 0.475 \text{ L}$$

8. (a) 7.3 + 0.45 + 11.8575

$$\begin{array}{r} 7.3 \\ + 0.45 \\ + 11.8575 \\ \hline 19.6075 \end{array}$$

$$\begin{aligned} \therefore 7.3 + 0.45 + 11.8575 \\ = 19.6075 \end{aligned}$$

(b) ₹ 325.50 + ₹ 87.75 + ₹ 0.65

$$\begin{array}{r} 325.50 \\ + 87.75 \\ + 0.65 \\ \hline 413.90 \end{array}$$

$$\begin{aligned} \therefore ₹ 325.50 + ₹ 87.75 + ₹ 0.65 \\ = ₹ 413.90 \end{aligned}$$

9. (a) 7.8 – 4.9

$$\begin{array}{r} 7.8 \\ - 4.9 \\ \hline 2.9 \end{array}$$

$$\therefore 7.8 - 4.9 = 2.9$$

(b) 120 – 56.82

$$\begin{array}{r} 120.00 \\ - 56.82 \\ \hline 63.18 \end{array}$$

$$\therefore 120 - 56.82 = 63.18$$

(c) 700.342 – 698.457

$$\begin{array}{r} 700.342 \\ - 698.457 \\ \hline 001.885 \end{array}$$

$$\begin{aligned} \therefore 700.342 - 698.457 \\ = 1.885 \end{aligned}$$

(d) 360 km – 249.450 km

$$\begin{array}{r} 360.000 \\ - 249.450 \\ \hline 110.550 \end{array}$$

$$\begin{aligned} \therefore 360 \text{ km} - 249.450 \text{ km} \\ = 110.550 \text{ km} \end{aligned}$$



Exercise 8B

Multiply the following :

1. (a) 4.25×10

$$\begin{array}{r} 4.25 \\ \times 10 \\ \hline 0\ 00 \\ 42\ 50 \\ \hline 42.50 \end{array}$$

$$\therefore 4.25 \times 10 = 42.50$$

(b) 29.526×1000

$$\begin{array}{r} 29.526 \\ \times 1\ 000 \\ \hline 00\ 000 \\ 000\ 000 \\ 0000\ 000 \\ 29526\ 000 \\ \hline 29526.000 \end{array}$$

$$\therefore 29.526 \times 1000 = 29526$$

(c) 0.05×1000

$$\begin{array}{r} 0.05 \\ \times 10\ 00 \\ \hline 0\ 00 \\ 00\ 00 \\ 000\ 00 \\ 0050\ 00 \\ \hline 0050.00 \end{array}$$

$$\therefore 0.05 \times 1000 = 50$$

(d) 1.089×1000

$$\begin{array}{r} 1.089 \\ \times 1\ 000 \\ \hline 0\ 000 \\ 00\ 000 \\ 000\ 000 \\ 1089\ 000 \\ \hline 1089.000 \end{array}$$

$$\therefore 1.089 \times 1000 = 1089$$

(e) 4.835×100

$$\begin{array}{r} 4.835 \\ \times 100 \\ \hline 0\ 000 \\ 00\ 000 \\ 483\ 500 \\ \hline 483.500 \end{array}$$

$$\therefore 4.835 \times 100 = 483.500$$

(f) 0.3245×100

$$\begin{array}{r} 0.3245 \\ \times 100 \\ \hline 0\ 0000 \\ 00\ 0000 \\ 032\ 4500 \\ \hline 032.4500 \end{array}$$

$$\therefore 0.3245 \times 100 = 32.4500$$

(g) 17.07×10

$$\begin{array}{r} 17.07 \\ \times 10 \\ \hline 00\ 00 \\ 170\ 70 \\ \hline 170.70 \end{array}$$

$\therefore 17.07 \times 10 = 170.70$

(h) 0.0002×100

$$\begin{array}{r} 0.0002 \\ \times 100 \\ \hline 0\ 0000 \\ 00\ 0000 \\ 000\ 0200 \\ \hline 000.0200 \end{array}$$

$\therefore 0.0002 \times 100 = 0.02$

2. (a) 0.3×6

$$\begin{array}{r} 0.3 \\ \times 6 \\ \hline 1.8 \end{array}$$

$\therefore 0.3 \times 6 = 1.8$

(b) 3.14×2

$$\begin{array}{r} 3.14 \\ \times 2 \\ \hline 6.28 \end{array}$$

$\therefore 3.14 \times 2 = 6.28$

(c) 2.5×15

$$\begin{array}{r} 2.5 \\ \times 15 \\ \hline 12\ 5 \\ 25\ 0 \\ \hline 37.5 \end{array}$$

$\therefore 2.5 \times 15 = 37.5$

(d) 5.73×12

$$\begin{array}{r} 5.73 \\ \times 12 \\ \hline 11\ 46 \\ 57\ 30 \\ \hline 68.76 \end{array}$$

$\therefore 5.73 \times 12 = 68.76$

3. (a) 0.2×2

$$\begin{array}{r} 0.2 \\ \times 2 \\ \hline 0.4 \end{array}$$

$\therefore 0.2 \times 2 = 0.4$

(b) 1.1×9

$$\begin{array}{r} 1.1 \\ \times 9 \\ \hline 9.9 \end{array}$$

$\therefore 1.1 \times 9 = 9.9$

(c) 0.7×5

$$\begin{array}{r} 0.7 \\ \times 5 \\ \hline 3.5 \end{array}$$

$\therefore 0.7 \times 5 = 3.5$

(d) 2.4×12

$$\begin{array}{r} 2.4 \\ \times 12 \\ \hline 4\ 8 \\ 24\ 0 \\ \hline 28.8 \end{array}$$

$\therefore 2.4 \times 12 = 28.8$

4. (a) 0.58×11

$$\begin{array}{r} 0.58 \\ \times 11 \\ \hline 0\ 58 \\ 05\ 80 \\ \hline 06.38 \end{array}$$

$\therefore 0.58 \times 11 = 6.38$

(b) 2.34×14

$$\begin{array}{r} 2.34 \\ \times 14 \\ \hline 9\ 36 \\ 23\ 40 \\ \hline 32.76 \end{array}$$

$\therefore 2.34 \times 14 = 32.76$

(c) 11.67×14

$$\begin{array}{r} 11.67 \\ \times 14 \\ \hline 46\ 68 \\ 116\ 70 \\ \hline 163.38 \end{array}$$

$\therefore 11.67 \times 14 = 163.38$

(d) 6.129×17

$$\begin{array}{r} 6.129 \\ \times 17 \\ \hline 42\ 903 \\ 61\ 290 \\ \hline 104.193 \end{array}$$

$\therefore 6.129 \times 17 = 104.193$

5. (a) 1.9×27

$$\begin{array}{r} 1.9 \\ \times 27 \\ \hline 13\ 3 \\ 38\ 0 \\ \hline 51.3 \end{array}$$

$\therefore 1.9 \times 27 = 51.3$

(b) 0.14×38

$$\begin{array}{r} 0.14 \\ \times 38 \\ \hline 1\ 12 \\ 04\ 20 \\ \hline 05.32 \end{array}$$

$\therefore 0.14 \times 38 = 5.32$

(c) 4.73×44

$$\begin{array}{r} 4.73 \\ \times 44 \\ \hline 18\ 92 \\ 189\ 20 \\ \hline 208.12 \end{array}$$

$\therefore 4.73 \times 44 = 208.12$

(d) 3.124×45

$$\begin{array}{r} 3.124 \\ \times 45 \\ \hline 15\ 620 \\ 124\ 960 \\ \hline 140.580 \end{array}$$

$\therefore 3.124 \times 45 = 140.580$

6. (a) 2.354×138

$$\begin{array}{r} 2.354 \\ \times 138 \\ \hline 18\ 832 \\ 70\ 620 \\ 235\ 400 \\ \hline 324.852 \end{array}$$

$\therefore 2.354 \times 138 = 324.852$

(b) 0.86×250

$$\begin{array}{r} 0.86 \\ \times 250 \\ \hline 0\ 00 \\ 43\ 00 \\ 172\ 00 \\ \hline 215.00 \end{array}$$

$\therefore 0.86 \times 250 = 215.00$

(c) 1.741×123

$$\begin{array}{r} 1.741 \\ \times 123 \\ \hline 5\ 223 \\ 34\ 820 \\ 174\ 100 \\ \hline 214.143 \end{array}$$

$\therefore 1.741 \times 123 = 214.143$

(d) 5.132×3.4

$$\begin{array}{r} 5.132 \\ \times 3.4 \\ \hline 2\ 0528 \\ 15\ 3960 \\ \hline 17.4488 \end{array}$$

$\therefore 5.132 \times 3.4 = 17.4488$

7. (a) 5.24×30

$$\begin{array}{r} 5.24 \\ \times 30 \\ \hline 0\ 00 \\ 157\ 20 \\ \hline 157.20 \end{array}$$

$\therefore 5.24 \times 30 = 157.20$

(b) 6.75×50

$$\begin{array}{r} 6.75 \\ \times 50 \\ \hline 0\ 00 \\ 337\ 50 \\ \hline 337.50 \end{array}$$

$\therefore 6.75 \times 50 = 337.50$

(c) 1.49×70

$$\begin{array}{r} 1.49 \\ \times 70 \\ \hline 0\ 00 \\ 104\ 30 \\ \hline 104.30 \end{array}$$

$\therefore 1.49 \times 70 = 104.30$

(d) 0.145×200

$$\begin{array}{r} 0.145 \\ \times 200 \\ \hline 0\ 000 \\ 00\ 000 \\ 029\ 000 \\ \hline 029.000 \end{array}$$

$\therefore 0.145 \times 200 = 29.000$

8. (a) 3.1×7

$$\begin{array}{r} 3.1 \\ \times 7 \\ \hline 21.7 \end{array}$$

$\therefore 3.1 \times 7 = 21.7$

(b) 14.7×0.15

$$\begin{array}{r} 14.7 \\ \times 0.15 \\ \hline 735 \\ 1470 \\ \hline 2.205 \end{array}$$

$\therefore 14.7 \times 0.15 = 2.205$

(c) 25.36×35

$$\begin{array}{r} 25.36 \\ \times 35 \\ \hline 12680 \\ 76080 \\ \hline 887.60 \end{array}$$

$\therefore 25.36 \times 35 = 887.60$

9. (a) 0.93×0.85

$$\begin{array}{r} 0.93 \\ \times 0.85 \\ \hline 465 \\ 7440 \\ 00000 \\ \hline 0.7905 \end{array}$$

$\therefore 0.93 \times 0.85 = 0.7905$

(b) $11.11 \times 1.1 \times 0.1$

$$\begin{array}{r} 11.11 \\ \times 1.1 \\ \hline 1111 \\ 11110 \\ \hline 12.221 \end{array}$$

$$\begin{array}{r} 12.221 \\ \times 0.1 \\ \hline 12221 \\ 000000 \\ \hline 01.2221 \end{array}$$

$\therefore 11.11 \times 1.1 \times 0.1 = 1.2221$

(c) $1.01 \times 2.3 \times 0.8$

$$\begin{array}{r} 1.01 \\ \times 2.3 \\ \hline 303 \\ 2020 \\ \hline 2.323 \end{array}$$

$$\begin{array}{r} 2.323 \\ \times 0.8 \\ \hline 18584 \\ 00000 \\ \hline 1.8584 \end{array}$$

$\therefore 1.01 \times 2.3 \times 0.8 = 1.8584$

10. Fill in the blanks :

(a) $2.4 \times 12 = 12 \times 2.4$

(b) $0.7 \times 1.5 = 1.5 \times 0.7$

(c) $5.04 \times 0.32 = 0.32 \times 5.04$

(d) $0.34 \times 1 = 0.34$

$$(e) 2.3 \times (0.4 \times 1.5) = (2.3 \times 0.4) \times 1.5$$

$$(f) 7.43 \times 0 = 0$$

$$(g) 0.56 \times 0 = 0$$

$$(h) 0.73 \times 0 = 0$$



Exercise 8C

Divide the following :

$$1. \quad (a) \quad \begin{array}{r} 6.3 \\ 4 \overline{) 25.2} \\ \underline{-24} \\ 12 \\ \underline{-12} \\ 0 \end{array}$$

Ans. 6.3

$$(b) \quad \begin{array}{r} 6.57 \\ 12 \overline{) 78.92} \\ \underline{-72} \\ 69 \\ \underline{-60} \\ 92 \\ \underline{-84} \\ 8 \end{array}$$

Ans. 6.58 (approx)

$$(c) \quad \begin{array}{r} 5.021 \\ 15 \overline{) 75.315} \\ \underline{-75} \\ 031 \\ \underline{-30} \\ 15 \\ \underline{-15} \\ 0 \end{array}$$

Ans. 5.021

$$2. \quad (a) \quad \begin{array}{r} 3.2 \\ 3 \overline{) 9.6} \\ \underline{-9} \\ 06 \\ \underline{-6} \\ 0 \end{array}$$

Ans. 3.2

$$(b) \quad \begin{array}{r} 4.1 \\ 6 \overline{) 24.6} \\ \underline{-24} \\ 06 \\ \underline{-6} \\ 0 \end{array}$$

Ans. 4.1

$$(c) \quad \begin{array}{r} 3.4 \\ 8 \overline{) 27.2} \\ \underline{-24} \\ 32 \\ \underline{-32} \\ 0 \end{array}$$

Ans. 3.4

$$(d) \quad \begin{array}{r} 1.23 \\ 5 \overline{) 6.15} \\ \underline{-5} \\ 11 \\ \underline{-10} \\ 15 \\ \underline{-15} \\ 0 \end{array}$$

Ans. 1.23

3. (a) $12.25 \div 5$

$$\begin{array}{r} 2.45 \\ 5 \overline{) 12.25} \\ \underline{-10} \\ 22 \\ \underline{-20} \\ 25 \\ \underline{-25} \\ 0 \end{array}$$

Ans. 2.45

(b) $59.56 \div 7$

$$\begin{array}{r} 8.50857 \\ 7 \overline{) 59.56} \\ \underline{-56} \\ 35 \\ \underline{-35} \\ 060 \\ \underline{-56} \\ 40 \\ \underline{-35} \\ 50 \\ \underline{-49} \\ 1 \end{array}$$

Ans. 8.5086 (approx)

(c) $10.08 \div 9$

$$\begin{array}{r} 1.12 \\ 9 \overline{) 10.08} \\ \underline{-9} \\ 10 \\ \underline{-9} \\ 18 \\ \underline{-18} \\ 0 \end{array}$$

Ans. 1.12

(d) $4.72 \div 8$

$$\begin{array}{r} 0.59 \\ 8 \overline{) 4.72} \\ \underline{-40} \\ 72 \\ \underline{-72} \\ 0 \end{array}$$

Ans. 0.59

4. Write the quotient :

(a) $67.3 \div 10$

$$\begin{array}{r} 6.73 \\ 10 \overline{) 67.3} \\ \underline{-60} \\ 73 \\ \underline{-70} \\ 30 \\ \underline{-30} \\ 0 \end{array}$$

Ans. 6.73

(b) $8.1 \div 10$

$$\begin{array}{r} 0.81 \\ 10 \overline{) 8.1} \\ \underline{-80} \\ 10 \\ \underline{-10} \\ 0 \end{array}$$

Ans. 0.81

(c) $8.75 \div 100$

$$\begin{array}{r} 0.0875 \\ 100 \overline{) 8.75} \\ \underline{-8.00} \\ 750 \\ \underline{-700} \\ 500 \\ \underline{-500} \\ 0 \end{array}$$

Ans. 0.0875

(e) $35.5 \div 100$

$$\begin{array}{r} 0.355 \\ 100 \overline{) 35.5} \\ \underline{-30.0} \\ 550 \\ \underline{-500} \\ 500 \\ \underline{-500} \\ 0 \end{array}$$

Ans. 0.355

Divide the following :

5. (a) $2.0 \div 2$

$$\begin{array}{r} 1.0 \\ 2 \overline{) 2.0} \\ \underline{-2} \\ 0 \end{array}$$

Ans. 1.0

(d) $0.9 \div 10$

$$\begin{array}{r} 0.09 \\ 10 \overline{) 0.90} \\ \underline{-90} \\ 0 \end{array}$$

Ans. 0.09

(f) $1.35 \div 100$

$$\begin{array}{r} 0.0135 \\ 100 \overline{) 1.35} \\ \underline{-1.00} \\ 350 \\ \underline{-300} \\ 500 \\ \underline{-500} \\ 0 \end{array}$$

Ans. 0.0135

(b) $9.6 \div 1.6$

$$\Rightarrow \frac{9.6 \times 10}{1.6 \times 10} = \frac{96}{16}$$

$$\begin{array}{r} 6 \\ 16 \overline{) 96} \\ \underline{-96} \\ 0 \end{array}$$

Ans. 6

(c) $6.25 \div 0.5$

$$\Rightarrow \frac{6.25 \times 10}{0.5 \times 10} = \frac{62.5}{5}$$

$$\begin{array}{r} 12.5 \\ 5 \overline{) 62.5} \\ \underline{-5} \\ 12 \\ \underline{-10} \\ 25 \\ \underline{-25} \\ 0 \end{array}$$

Ans. 12.5

6. (a) $26.934 \div 134$

$$\begin{array}{r} 0.201 \\ 134 \overline{) 26.934} \\ \underline{-268} \\ 134 \\ \underline{-134} \\ 0 \end{array}$$

Ans. 0.201

(d) $12.96 \div 3.24$

$$\Rightarrow \frac{12.96 \times 100}{3.24 \times 100} = \frac{1296}{324}$$

$$\begin{array}{r} 4 \\ 324 \overline{) 1296} \\ \underline{-1296} \\ 0 \end{array}$$

Ans. 4

(b) $334.15 \div 205$

$$\begin{array}{r} 1.63 \\ 205 \overline{) 334.15} \\ \underline{-205} \\ 1291 \\ \underline{-1230} \\ 615 \\ \underline{-615} \\ 0 \end{array}$$

Ans. 1.63

(c) $83.325 \div 275$

$$\begin{array}{r} 0.303 \\ 275 \overline{) 83.325} \\ \underline{-825} \\ 825 \\ \underline{-825} \\ 0 \end{array}$$

Ans. 0.303

(d) $436.872 \div 218$

$$\begin{array}{r} 2.04 \\ 218 \overline{) 436.872} \\ \underline{-436} \\ 872 \\ \underline{-872} \\ 0 \end{array}$$

Ans. 2.04

7. (a) $500.4 \div 100$

$$\begin{array}{r} 5.004 \\ 100 \overline{) 500.4} \\ \underline{-500} \\ 400 \\ \underline{-400} \\ 0 \end{array}$$

Ans. 5.004

(b) $845.1 \div 300$

$$\begin{array}{r} 2.817 \\ 300 \overline{) 845.1} \\ \underline{-600} \\ 2451 \\ \underline{-2400} \\ 510 \\ \underline{-300} \\ 2100 \\ \underline{-2100} \\ 0 \end{array}$$

Ans. 2.817

8. (a) $6 \div 0.4$

$$\Rightarrow \frac{6 \times 10}{0.4 \times 10} = \frac{60}{4}$$

$$\begin{array}{r} 15 \\ 4 \overline{) 60} \\ \underline{-4} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

Ans. 15

(b) $147 \div 0.14$

$$\Rightarrow \frac{147 \times 100}{0.14 \times 100} = \frac{14700}{14}$$

$$\begin{array}{r} 1050 \\ 14 \overline{) 14700} \\ \underline{-14} \\ 070 \\ \underline{-70} \\ 00 \end{array}$$

Ans. 1050

(c) $6 \div 0.8$

$$\Rightarrow \frac{6 \times 10}{0.8 \times 10} = \frac{60}{8}$$

$$\begin{array}{r} 7.5 \\ 8 \overline{) 60} \\ \underline{-56} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

Ans. 7.5

(d) $15 \div 0.048$

$$\Rightarrow \frac{15 \times 1000}{0.048 \times 1000} = \frac{15000}{48}$$

$$\begin{array}{r} 312.5 \\ 48 \overline{) 15000} \\ \underline{-144} \\ 60 \\ \underline{-48} \\ 120 \\ \underline{-96} \\ 240 \\ \underline{-240} \\ 0 \end{array}$$

Ans. 312.5

9. (a) $6 \div 75$

$$\begin{array}{r} 0.08 \\ 75 \overline{) 600} \\ \underline{-600} \\ 0 \end{array}$$

Ans. 0.08

(b) $18 \div 125$

$$\begin{array}{r} 0.144 \\ 125 \overline{) 180} \\ \underline{-125} \\ 550 \\ \underline{-500} \\ 500 \\ \underline{-500} \\ 0 \end{array}$$

Ans. 0.144

(c) $80 \div 32$

$$\begin{array}{r} 2.5 \\ 32 \overline{) 80} \\ \underline{-64} \\ 160 \\ \underline{-160} \\ 0 \end{array}$$

Ans. 2.5

(d) $3 \div 12$

$$\begin{array}{r} 0.25 \\ 12 \overline{) 30} \\ \underline{-24} \\ 60 \\ \underline{-60} \\ 0 \end{array}$$

Ans. 0.25

10. Convert into a decimal fraction :

(a) $\frac{1}{5}$

$$\begin{array}{r} 0.2 \\ 5 \overline{) 10} \\ \underline{-10} \\ 0 \end{array}$$

Ans. 0.2

(b) $\frac{9}{5}$

$$\begin{array}{r} 1.8 \\ 5 \overline{) 9} \\ \underline{-5} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

Ans. 1.8

(c) $\frac{27}{80}$

$$\begin{array}{r} 0.3375 \\ 80 \overline{) 270} \\ \underline{-240} \\ 300 \\ \underline{-240} \\ 600 \\ \underline{-560} \\ 400 \\ \underline{-400} \\ 0 \end{array}$$

Ans. 0.3375

$$(d) 9\frac{3}{8} = \frac{75}{8}$$

$$\begin{array}{r} 9.375 \\ 8 \overline{) 75} \\ \underline{-72} \\ 30 \\ \underline{-24} \\ 60 \\ \underline{-56} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

Ans. 9.375

$$(e) 15\frac{3}{16} = \frac{243}{16}$$

$$\begin{array}{r} 15.1875 \\ 16 \overline{) 243} \\ \underline{-16} \\ 83 \\ \underline{-80} \\ 30 \\ \underline{-16} \\ 140 \\ \underline{-128} \\ 120 \\ \underline{-112} \\ 80 \\ \underline{-80} \\ 0 \end{array}$$

Ans. 15.1875

$$(f) 1\frac{1}{4} = \frac{5}{4}$$

$$\begin{array}{r} 1.25 \\ 4 \overline{) 5} \\ \underline{-4} \\ 10 \\ \underline{-8} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

Ans. 1.25



Exercise 8D

1. The boys of a class collected = ₹ 25,000

$$\text{Spent part of this money} = 0.75 = \frac{75}{100}$$

$$\text{Spent money} = ₹ 25,000 \text{ of } \frac{75}{100}$$

$$= ₹ 25,000 \times \frac{75}{100} = 250 \times 75$$

$$= ₹ 18750$$

$$\text{Money left} = ₹ 25,000 - ₹ 18750$$

$$= ₹ 6250$$

2. A dozen glass costs = ₹ 24

$$\therefore 1 \text{ dozen} = 12$$

$$\text{Cost of one glass} = ₹ 24 \div 12$$

$$= ₹ 2$$

$$\begin{array}{r} 2 \\ 12 \overline{) 24} \\ \underline{-24} \\ 0 \end{array}$$

3. Cost of a book = ₹ 19.50

Cost of notebooks = ₹ 90

Cost of stationary = ₹ 28.25

Total spent amount = ₹ 19.50 + ₹ 90 + ₹ 28.25

$$= ₹ 137.75$$

Sahil had = ₹ 150

Total spent amount = ₹ 137.75

Money left with Sahil = ₹ 150 – ₹ 137.75

$$= ₹ 12.25$$

$$\begin{array}{r} 19.50 \\ + 90.00 \\ + 28.25 \\ \hline 137.75 \end{array}$$

$$\begin{array}{r} 150.00 \\ - 137.75 \\ \hline 012.25 \end{array}$$

4. Number of students in Anshika's new hostel = 75

Number of students in Anshika's old hostel = 2.5 times

Number of students in old hostel = $75 \div 2.5$

$$= \frac{75 \times 10}{2.5 \times 10} = \frac{750}{25}$$

$$= 30 \text{ students}$$

$$\begin{array}{r} 30 \\ 25 \overline{) 750} \\ \underline{- 75} \\ 00 \end{array}$$

5. Divisor = 7, Dividend = ?, Quotient = 65.2

Dividend = Divisor \times Quotient

$$= 7 \times 65.2$$

$$= 456.4$$

$$\begin{array}{r} 65.2 \\ \times 7 \\ \hline 456.4 \end{array}$$

6. A train covers a distance in 6 hours = 242.04 km

The speed of the train per hour = $242.04 \div 6$

$$= 40.34 \text{ km/h}$$

$$\begin{array}{r} 40.34 \\ 6 \overline{) 242.04} \\ \underline{- 24} \\ 020 \\ \underline{- 18} \\ 24 \\ \underline{- 24} \\ 0 \end{array}$$

7. A bike covers a distance in one hour = 50.5 km

A bike covers distance in 18 hours = $50.5 \text{ km} \times 18$

$$= 909.0 \text{ km}$$

$$\begin{array}{r} 50.5 \\ \times 18 \\ \hline 4040 \\ 5050 \\ \hline 9090 \end{array}$$

8. The length of a piece of rope = 105 cm

The total length of 15 pieces of rope = $105 \text{ cm} \times 15$
 $= 1575 \text{ cm}$

$\therefore 100 \text{ cm} = 1 \text{ meter}$

$\therefore 1575 \text{ cm} = 1575 \div 100 \text{ m} = 15.75 \text{ m}$

$$\begin{array}{r} 105 \\ \times 15 \\ \hline 525 \\ 1050 \\ \hline 1575 \end{array}$$



Maths in Everyday Life

Observation, Curiosity, Life Skills

A pet dog drink milk everyday = 0.450 L

A pet dog drink milk in a week = $0.450 \text{ L} \times 7$

($\because 1 \text{ week} = 7 \text{ days}$)

$= 3.150 \text{ L}$

$$\begin{array}{r} 0.450 \\ \times 7 \\ \hline 3.150 \end{array}$$

We will look after it well and give food etc. regularly.

Apply Your Learning

Critical and Logical thinking, Problem-solving

Number of bricks in a trolley = 18

The total weight of these bricks = 55.8 kg

The weight of 1 brick = $55.8 \text{ kg} \div 18$

$= 3.1 \text{ kg}$

$$\begin{array}{r} 3.1 \\ 18 \overline{) 55.8} \\ \underline{- 54} \\ 18 \\ \underline{- 18} \\ 0 \end{array}$$

Think, Solve and Learn

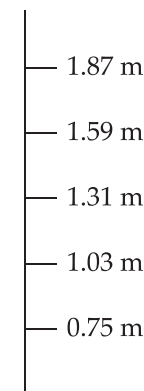
Observation, Problem-solving

Height of a wall = 1.6 m

In the first attempt, a person able to reach = 0.75 m

In each successive attempt he improves = 0.28 m

Total attempts = 5





Exercise 9A

1. Write in decimals :

(a) $7 \text{ mm} = \underline{\hspace{2cm}} \text{ cm}$

We know,

$10 \text{ mm} = 1 \text{ cm}$

$\therefore 7 \text{ mm} = (7 \div 10) \text{ cm}$

$= 0.7 \text{ cm}$

(c) $208 \text{ m} = \underline{\hspace{2cm}} \text{ km}$

We know,

$1000 \text{ m} = 1 \text{ km}$

$\therefore 208 \text{ m} = 208 \div 1000 \text{ km}$

$= 0.208 \text{ km}$

(e) $75 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$

We know,

$1000 \text{ g} = 1 \text{ kg}$

$\therefore 75 \text{ g} = 75 \div 1000 \text{ kg}$

$= 0.075 \text{ kg}$

(g) $35 \text{ mm} = \underline{\hspace{2cm}} \text{ m}$

We know,

$1000 \text{ mm} = 1 \text{ m}$

$\therefore 35 \text{ mm} = 35 \div 1000 \text{ m}$

$= 0.035 \text{ m}$

(b) $350 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$

We know,

$1000 \text{ mL} = 1 \text{ L}$

$\therefore 350 \text{ mL} = 350 \div 1000 \text{ L}$

$= 0.35 \text{ L}$

(d) $80 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

We know,

$100 \text{ cm} = 1 \text{ m}$

$\therefore 80 \text{ cm} = 80 \div 100 \text{ m}$

$= 0.8 \text{ m}$

(f) $90 \text{ m} = \underline{\hspace{2cm}} \text{ km}$

We know,

$1000 \text{ m} = 1 \text{ km}$

$\therefore 90 \text{ m} = 90 \div 1000 \text{ km}$

$= 0.09 \text{ km}$

(h) $8 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$

We know,

$1000 \text{ mL} = 1 \text{ L}$

$\therefore 8 \text{ mL} = 8 \div 1000 \text{ L}$

$= 0.008 \text{ L}$

(i) $12.5 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$

We know,

$$1000 \text{ g} = 1 \text{ kg}$$

$$\therefore 12.5 \text{ g} = 12.5 \div 1000 \text{ kg} \\ = 0.0125 \text{ kg}$$

(j) $72.5 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$

We know,

$$1 \text{ cm} = 10 \text{ mm}$$

$$\therefore 72.5 \text{ cm} = 72.5 \times 10 \text{ mm} \\ = 725 \text{ mm}$$

2. Fill in the blanks :

(a) $1.8 \text{ mm} = \underline{\hspace{2cm}} \text{ cm}$

We know,

$$10 \text{ mm} = 1 \text{ cm}$$

$$\therefore 1.8 \text{ mm} = 1.8 \div 10 \text{ cm} \\ = 0.18 \text{ m}$$

(b) $47.5 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$

We know,

$$1000 \text{ g} = 1 \text{ kg}$$

$$\therefore 47.5 \text{ g} = 47.5 \div 1000 \text{ kg} \\ = 0.0475 \text{ kg}$$

(c) $6.08 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$

We know,

$$1 \text{ m} = 100 \text{ cm}$$

$$\therefore 6.08 \text{ m} = 6.08 \times 100 \text{ cm} \\ = 608 \text{ cm}$$

(d) $23.5 \text{ km} = \underline{\hspace{2cm}} \text{ m}$

We know,

$$1 \text{ km} = 1000 \text{ m}$$

$$\therefore 23.5 \text{ km} = 23.5 \times 1000 \text{ m} \\ = 23500 \text{ m}$$

(e) $2.5 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

We know,

$$100 \text{ cm} = 1 \text{ m}$$

$$\therefore 2.5 \text{ cm} = 2.5 \div 100 \text{ m} \\ = 0.025 \text{ m}$$

(f) $8.9 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$

We know,

$$1000 \text{ mL} = 1 \text{ L}$$

$$\therefore 8.9 \text{ mL} = 8.9 \div 1000 \text{ L} \\ = 0.0089 \text{ L}$$

(g) $3.08 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$

We know,

$$1 \text{ L} = 1000 \text{ mL}$$

$$\therefore 3.08 \text{ L} = 3.08 \times 1000 \text{ mL} \\ = 3080 \text{ mL}$$

(h) $80 \text{ m} = \underline{\hspace{2cm}} \text{ km}$

We know,

$$1000 \text{ m} = 1 \text{ km}$$

$$\therefore 80 \text{ m} = 80 \div 1000 \text{ km} \\ = 0.08 \text{ km}$$

(i) $345 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

We know,

$$100 \text{ cm} = 1 \text{ m}$$

$$\therefore 345 \text{ cm} = 345 \div 100 \text{ m} \\ = 3.45 \text{ m}$$

(j) $4.3 \text{ m} = \underline{\hspace{2cm}} \text{ mm}$

We know,

$$1 \text{ m} = 1000 \text{ mm}$$

$$\therefore 4.3 \text{ m} = 4.3 \times 1000 \text{ mm} \\ = 4300 \text{ mm}$$

(k) $53.7 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$

We know,

$$1 \text{ kg} = 1000 \text{ g}$$

$$\begin{aligned}\therefore 53.7 \text{ kg} &= 53.7 \times 1000 \text{ g} \\ &= 53700 \text{ g}\end{aligned}$$

(l) $4321 \text{ g} = \underline{\hspace{2cm}} \text{ kg}$

We know,

$$1000 \text{ g} = 1 \text{ kg}$$

$$\begin{aligned}\therefore 4321 \text{ g} &= 4321 \div 1000 \text{ kg} \\ &= 4.321 \text{ kg}\end{aligned}$$

3. Fill in the blanks :

(a) $578 \text{ cm into m} = \underline{\hspace{2cm}}$

We know,

$$100 \text{ cm} = 1 \text{ m}$$

$$\begin{aligned}\therefore 578 \text{ cm} &= 578 \div 100 \text{ m} \\ &= 5.78 \text{ m}\end{aligned}$$

(b) $35.7 \text{ cm into m} = \underline{\hspace{2cm}}$

We know,

$$100 \text{ cm} = 1 \text{ m}$$

$$\begin{aligned}\therefore 35.7 \text{ cm} &= 35.7 \div 100 \text{ m} \\ &= 0.357 \text{ m}\end{aligned}$$

(c) $40.5 \text{ mL into L} = \underline{\hspace{2cm}}$

We know,

$$1000 \text{ mL} = 1 \text{ L}$$

$$\begin{aligned}\therefore 40.5 \text{ mL} &= 40.5 \div 1000 \text{ L} \\ &= 0.0405 \text{ L}\end{aligned}$$

(d) $10.25 \text{ kg into g} = \underline{\hspace{2cm}}$

We know,

$$1 \text{ kg} = 1000 \text{ g}$$

$$\begin{aligned}\therefore 10.25 \text{ kg} &= 10.25 \times 1000 \text{ g} \\ &= 10250 \text{ g}\end{aligned}$$

(e) $8.5 \text{ m into cm} = \underline{\hspace{2cm}}$

We know,

$$1 \text{ m} = 100 \text{ cm}$$

$$\begin{aligned}\therefore 8.5 \text{ m} &= 8.5 \times 100 \text{ cm} \\ &= 850 \text{ cm}\end{aligned}$$

(f) $89 \text{ mm into cm} = \underline{\hspace{2cm}}$

We know,

$$10 \text{ mm} = 1 \text{ cm}$$

$$\begin{aligned}\therefore 89 \text{ mm} &= 89 \div 10 \text{ cm} \\ &= 8.9 \text{ cm}\end{aligned}$$

(g) $20.28 \text{ kg into g} = \underline{\hspace{2cm}}$

We know,

$$1 \text{ kg} = 1000 \text{ g}$$

$$\begin{aligned}\therefore 20.28 \text{ kg} &= 20.28 \times 1000 \text{ g} \\ &= 20280 \text{ g}\end{aligned}$$

(h) $58 \text{ m into km} = \underline{\hspace{2cm}}$

We know,

$$1000 \text{ m} = 1 \text{ km}$$

$$\begin{aligned}\therefore 58 \text{ m} &= 58 \div 1000 \text{ km} \\ &= 0.058 \text{ km}\end{aligned}$$

(i) $2.3 \text{ m into mm} = \underline{\hspace{2cm}}$

We know,

$$1 \text{ m} = 1000 \text{ mm}$$

$$\begin{aligned}\therefore 2.3 \text{ m} &= 2.3 \times 1000 \text{ mm} \\ &= 2300 \text{ mm}\end{aligned}$$

(j) $3240 \text{ mL into L} = \underline{\hspace{2cm}}$

We know,

$$1000 \text{ mL} = 1 \text{ L}$$

$$\begin{aligned}\therefore 3240 \text{ mL} &= 3240 \div 1000 \text{ L} \\ &= 3.240 \text{ L}\end{aligned}$$

(k) 5362 g into kg = _____

We know,

$$1000 \text{ g} = 1 \text{ kg}$$

$$\therefore 5362 \text{ g} = 5362 \div 1000 \text{ kg} \\ = 5.362 \text{ kg}$$

(l) 12.05 km into m = _____

We know,

$$1 \text{ km} = 1000 \text{ m}$$

$$\therefore 12.05 \text{ km} = 12.05 \times 1000 \text{ m} \\ = 12050 \text{ m}$$

4. Convert the following :

(a) 5 kg 380 g = **5.380 kg**

(b) 7 kg 60 g = **7.60 kg**

(c) 6 m 20 cm = **6.20 m**

(d) 4 L 50 mL = **4.50 L**

(e) 3 km 400 m = **3.400 km**

(f) 13 L 700 mL = **13.700 L**

5. Put >, < or = in the boxes :

(a) 2700 g 2 kg 70 g

(b) 840 m 8.4 km

(c) 7 L 200 mL 7.2 L

(d) 14 kg 300 g 14.03 kg

(e) 6.5 L 6 L 50 mL

(f) 5.9 km 5 km 90 m

6. Complete the following :

(a) 4 kL = 40 hL 400 dal 4000 L

(b) 600 g = 60 dag 6 hg 0.6 kg

(c) 5 g = 50 dg 500 cg 5000 mg

(d) 9 L = 90 dL 900 cL 9000 mL

(e) 7 km = 70 hm 700 dam 7000 m

(f) 5000 m = 500 dam 50 hm 5 km



Exercise 9B

1. Add the following : (Write the answers in the decimals)

(a) 85 g 90 mg, 38 g 83 mg and 9 g 9 mg

$$85 \text{ g } 90 \text{ mg} = 85.90 \text{ g}$$

$$38 \text{ g } 83 \text{ mg} = 38.83 \text{ g}$$

$$9 \text{ g } 9 \text{ mg} = 9.09 \text{ g}$$

85	.	90	g
+	38	.	83 g
+	9	.	09 g
<hr/>			
133	.	82	g

(b) 8 kg 360 g, 8 kg 75 g and 80 g

$$8 \text{ kg } 360 \text{ g} = 8.360 \text{ kg}$$

$$8 \text{ kg } 75 \text{ g} = 8.075 \text{ kg}$$

$$80 \text{ g} = 0.080 \text{ kg}$$

$$\begin{array}{r} 8.360 \text{ kg} \\ + 8.075 \text{ kg} \\ + 0.080 \text{ kg} \\ \hline 16.515 \text{ kg} \end{array}$$

(c) 8 kL 9 L, 9 kL 60 L and 83 L

$$8 \text{ kL } 9 \text{ L} = 8.009 \text{ kL}$$

$$9 \text{ kL } 60 \text{ L} = 9.060 \text{ kL}$$

$$83 \text{ L} = 0.083 \text{ kL}$$

$$\begin{array}{r} 8.009 \text{ kL} \\ + 9.060 \text{ kL} \\ + 0.083 \text{ kL} \\ \hline 17.152 \text{ kL} \end{array}$$

(d) 38 L 86 mL, 80 L, 80 L 67 mL and 81 L 28 mL

$$38 \text{ L } 86 \text{ mL} = 38.086 \text{ L}$$

$$80 \text{ L} = 80.000 \text{ L}$$

$$80 \text{ L } 67 \text{ mL} = 80.067 \text{ L}$$

$$81 \text{ L } 28 \text{ mL} = 81.028 \text{ L}$$

$$\begin{array}{r} 38.086 \text{ L} \\ + 80.000 \text{ L} \\ + 80.067 \text{ L} \\ + 81.028 \text{ L} \\ \hline 279.181 \text{ L} \end{array}$$

(e) 5 km 75 m, 12 km 163 m and 884 m

$$5 \text{ km } 75 \text{ m} = 5.075 \text{ km}$$

$$12 \text{ km } 163 \text{ m} = 12.163 \text{ km}$$

$$884 \text{ m} = 0.884 \text{ km}$$

$$\begin{array}{r} 5.075 \text{ km} \\ + 12.163 \text{ km} \\ + 0.884 \text{ km} \\ \hline 18.122 \text{ km} \end{array}$$

(f) 38 m 86 cm, 8 m 34 cm and 65 cm

$$38 \text{ m } 86 \text{ cm} = 38.86 \text{ m}$$

$$8 \text{ m } 34 \text{ cm} = 8.34 \text{ m}$$

$$65 \text{ cm} = 0.65 \text{ m}$$

$$\begin{array}{r} 38.86 \text{ m} \\ + 8.34 \text{ m} \\ + 0.65 \text{ m} \\ \hline 47.85 \text{ m} \end{array}$$

2. Subtract the following : (Write the answers in decimals)

(a) 76 m 85 cm from 90 m

Now Subtract :

$$76 \text{ m } 85 \text{ cm} = 76.85 \text{ m}$$

$$90 \text{ m} = 90.00 \text{ m}$$

$$\begin{array}{r} 90.00 \text{ m} \\ - 76.85 \text{ m} \\ \hline 13.15 \text{ m} \end{array}$$

(b) 26 km 375 m from 33 km 97 m

$$26 \text{ km } 375 \text{ m} = 26.375 \text{ km}$$

$$33 \text{ km } 97 \text{ m} = 33.097 \text{ km}$$

Now Subtract :

$$\begin{array}{r} 33.097 \text{ km} \\ - 26.375 \text{ km} \\ \hline 06.722 \text{ km} \end{array}$$

(c) 18 kg 24 g from 42 kg 10 g

$$18 \text{ kg } 24 \text{ g} = 18.024 \text{ kg}$$

$$42 \text{ kg } 10 \text{ g} = 42.010 \text{ kg}$$

Now Subtract :

$$\begin{array}{r} 42.010 \text{ kg} \\ - 18.024 \text{ kg} \\ \hline 23.986 \text{ kg} \end{array}$$

(d) 81 kg 432 g from 100 kg

$$81 \text{ kg } 432 \text{ g} = 81.432 \text{ kg}$$

$$100 \text{ kg} = 100.000 \text{ kg}$$

Now Subtract :

$$\begin{array}{r} 100.000 \text{ kg} \\ - 81.432 \text{ kg} \\ \hline 18.568 \text{ kg} \end{array}$$

(e) 76 kL 375 L from 90 kL 80 L

$$76 \text{ kL } 375 \text{ L} = 76.375 \text{ kL}$$

$$90 \text{ kL } 80 \text{ L} = 90.080 \text{ kL}$$

Now Subtract :

$$\begin{array}{r} 90.080 \text{ kL} \\ - 76.375 \text{ kL} \\ \hline 13.705 \text{ kL} \end{array}$$

(f) 49 L 875 mL from 88 L 70 mL

$$49 \text{ L } 875 \text{ mL} = 49.875 \text{ L}$$

$$88 \text{ L } 70 \text{ mL} = 88.070 \text{ L}$$

Now Subtract :

$$\begin{array}{r} 88.070 \text{ L} \\ - 49.875 \text{ L} \\ \hline 38.195 \text{ L} \end{array}$$

3. Weight of 1st children = 46.2 kg

Weight of 2nd children = 68.75 kg

Weight of 3rd children = 46.125 kg

Weight of 4th children = 45.896 kg

Weight of 5th children = 54.283 kg

$$\begin{array}{r} 46.200 \text{ kg} \\ + 68.750 \text{ kg} \\ + 46.125 \text{ kg} \\ + 45.896 \text{ kg} \\ + 54.283 \text{ kg} \\ \hline 261.254 \text{ kg} \end{array}$$

Total weight of 5 childrens = $(46.2 + 68.75 + 46.125 + 45.896 + 54.283)$ kg
= 261.254 kg

4. Capacity of oil = 8.5 L

Cost of each litre oil = ₹ 84.50

Total spend = ₹ 84.50 × 8.5

= ₹ 718.250

$$\begin{array}{r} 84.50 \\ \times 8.5 \\ \hline 422\ 50 \\ 6760\ 00 \\ \hline 718.250 \end{array}$$

5. 15 slabs of chocolate weigh = 37.5 kg

1 slab of chocolate weigh = 37.5 kg ÷ 15

= 2.5 kg

$$\begin{array}{r} 2.5 \\ 15 \overline{) 37.5} \\ \underline{-30} \\ 75 \\ \underline{-75} \\ 0 \end{array}$$

6. Height a pile of books = 67.5 cm

Thick of each book = 4.5 cm

Number of books in the pile = 67.5 ÷ 4.5

$$= \frac{67.5 \times 10}{4.5 \times 10} = \frac{675}{45}$$

= 15 books

$$\begin{array}{r} 15 \\ 45 \overline{) 675} \\ \underline{-45} \\ 225 \\ \underline{-225} \\ 0 \end{array}$$

7. The basketball team runs round a field daily = 5 times

The perimeter travelled in each round = 284.75 m

Total run every day = (284.75 × 5) m

= 1423.75 m

$$\begin{array}{r} 284.75 \\ \times 5 \\ \hline 1423.75 \end{array}$$

8. Capacity of milk = 22.750 L

Number of cans = 13

Capacity of milk in each can = (22.750 ÷ 13) L

= 1.750 L

$$\begin{array}{r} 1.750 \\ 13 \overline{) 22.750} \\ \underline{-13} \\ 97 \\ \underline{-91} \\ 65 \\ \underline{-65} \\ 00 \end{array}$$

9. 8 bottles of Pepsi weigh = 12.24 kg
 The weight of one bottle = $12.24 \text{ kg} \div 8$
 = 1.53 kg

$$\begin{array}{r} 1.53 \\ 8 \overline{) 12.24} \\ \underline{-8} \\ 42 \\ \underline{-40} \\ 24 \\ \underline{-24} \\ 0 \end{array}$$

10. Used cloth in 1st shirt = 2.75 m
 Used cloth in 2nd shirt = 2.70 m
 Used cloth in 3rd shirt = 2.60 m
 Used cloth in 4th shirt = 1.85 m

$$\begin{array}{r} 2.75 \\ + 2.70 \\ + 2.60 \\ + 1.85 \\ \hline 9.90 \end{array}$$

The total amount of cloth needed = $(2.75 + 2.70 + 2.60 + 1.85) \text{ m}$
 = 9.90 m

11. Weight of bajra = 10.76 kg
 Number of bags = 8
 Weight of bajra in each bag = $10.760 \text{ kg} \div 8$
 = 1.345 kg

$$\begin{array}{r} 1.345 \\ 8 \overline{) 10.760} \\ \underline{-8} \\ 27 \\ \underline{-24} \\ 36 \\ \underline{-32} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

12. Number of gold chains = 8
 Weight of each chain = 25.726 g
 Total weight of chains = $25.726 \times 8 \text{ g}$
 = 205.808 g

$$\begin{array}{r} 25.726 \\ \times 8 \\ \hline 205.808 \end{array}$$

13. The cost of 1.4 kg of sugar = ₹ 54.60
 The cost of 1 kg sugar = $\text{₹ } 54.60 \div 1.4$
 = $\frac{54.60 \times 10}{1.4 \times 10}$
 = $\frac{546}{14} = \text{₹ } 39$

$$\begin{array}{r} 39 \\ 14 \overline{) 546} \\ \underline{-42} \\ 126 \\ \underline{-126} \\ 0 \end{array}$$

14. One bag of rice weighs = 8.35 kg
 The weight of 12 bags of rice = $8.35 \text{ kg} \times 12$
 $= 100.20 \text{ kg}$

$$\begin{array}{r} 8.35 \\ \times 12 \\ \hline 1670 \\ 8350 \\ \hline 100.20 \end{array}$$

15. The total weight of a bag of sand and 35 marbles = 1 kg 10 g

Weight of each marble = 8 g

Total weight of marbles = $35 \times 8 \text{ g}$
 $= 280 \text{ g}$

$$\begin{array}{r} 35 \\ \times 8 \\ \hline 280 \end{array}$$

The weight of a bag of sand = 1 kg 10 g – 280 g

($\because 1 \text{ kg } 10 \text{ g} = 1000 \text{ g} + 10 \text{ g} = 1010 \text{ g}$)

$\therefore 1010 \text{ g} - 280 \text{ g} = 730 \text{ g}$



Maths Fun

Reflection, Conceptualisation, Integrate with Art

Do yourself.

Apply Your Learning

Critical and Logical thinking, Problem-solving

The capacity of a glass = 480 mL

Number of glasses = 5

Total capacity of glasses = $480 \text{ mL} \times 5$
 $= 2400 \text{ mL}$
 $= 2.400 \text{ L}$

$$\begin{array}{r} 480 \\ \times 5 \\ \hline 2400 \end{array}$$

The capacity of a jug = 1.475 L

Number of jugs = 2

Total capacity of jugs = $1.475 \text{ L} \times 2$
 $= 2.950 \text{ L}$

$$\begin{array}{r} 1.475 \\ \times 2 \\ \hline 2.950 \end{array}$$

The total capacity of 5 such glasses and 2 such jugs = $2.400 \text{ L} + 2.950 \text{ L}$
 $= 5.350 \text{ L}$

Think, Solve and Learn

Problem-solving, Applicative thinking

A tower is painted black and white.

White part = $2\frac{1}{3} = \frac{7}{3}$

Length of black part = 36.6 dm

Length of white part = $36.6 \times \frac{7}{3}$

$$= 12.2 \times 7$$

$$= 85.4 \text{ dm}$$

Length of the tower = $(36.6 + 85.4) \text{ dm} = 122 \text{ dm}$

$$\therefore 10 \text{ dm} = 1 \text{ m}$$

$$\therefore 122 \text{ dm} = 122 \div 10 \text{ m} \\ = 12.2 \text{ m}$$

$$\therefore \text{Length of the tower} = 12.2 \text{ m}$$



Time



Exercise 10A

1. Convert to 24-hour clock time :

(a) 4 : 20 a.m. = **0420 hours** (b) 8 : 45 a.m. = **0845 hours**

(c) 12 : 40 a.m. = **0040 hours** (d) 2 : 22 p.m. = $(02 + 12)$ 22 hours
= **1422 hours**

(e) 7 : 40 p.m. = $(07 + 12)$ 40 hours
= **1940 hours**

(f) 10 : 05 p.m. = $(10 + 12)$ 05 hours
= **2205 hours**

(g) 11 : 30 a.m. = **1130 hours**

(h) 12 noon = $(00 + 12)$ 00 hours
= **1200 hours**

(i) 2 : 00 p.m. = $(02 + 12)$ 00 hours
= **1400 hours**

(j) 3 : 16 p.m. = $(03 + 12)$ 16 hours
= **1516 hours**

$$(k) 9 : 00 \text{ p.m.} = (09 + 12) 00 \text{ hours} \\ = 2100 \text{ hours}$$

$$(l) 11 : 59 \text{ p.m.} = (11 + 12) 59 \text{ hours} \\ = 2359 \text{ hours}$$

2. Convert to 12-hour clock time :

$$(a) 1200 \text{ hours} = 12:00 \text{ p.m.} \quad (b) 0019 \text{ hours} = 12:19 \text{ a.m.}$$

$$(c) 0630 \text{ hours} = 6:30 \text{ a.m.} \quad (d) 1217 \text{ hours} = 12:17 \text{ p.m.}$$

$$(e) 1515 \text{ hours} = 3:15 \text{ p.m.} \quad (f) 2215 \text{ hours} = 10:15 \text{ p.m.}$$

$$(g) 0000 \text{ hours} = 12:00 \text{ a.m.} \quad (h) 0400 \text{ hours} = 4:00 \text{ a.m.}$$

$$(i) 0848 \text{ hours} = 8:48 \text{ a.m.} \quad (j) 1535 \text{ hours} = 3:35 \text{ p.m.}$$

$$(k) 1925 \text{ hours} = 7:25 \text{ p.m.} \quad (l) 2345 \text{ hours} = 11:45 \text{ p.m.}$$



Exercise 10B

1. Add the following :

$$(a) 2 \text{ min } 40 \text{ s and } 35 \text{ s}$$

min	s
2	40
+	35
2	75
+ 1	- 60
3	15

Ans. 3 min 15 s

$$(b) 3 \text{ h } 37 \text{ min and } 49 \text{ min}$$

h	min
3	37
+	49
3	86
+ 1	- 60
4	26

Ans. 4 h 26 min

$$(c) 4 \text{ h } 34 \text{ min } 52 \text{ s and } 17 \text{ min } 17 \text{ s}$$

h	min	s
4	34	52
+	17	17
4	51	69
	+ 1	- 60
4	52	09

Ans. 4 h 52 min 9 s

$$(d) 5 \text{ h } 22 \text{ min and } 4 \text{ h } 38 \text{ min}$$

h	min
5	22
+ 4	38
9	60

Ans. 9 h 60 min or 10 hours

2. Subtract the following :

- (a) 30 min 50 s from 45 min 20 s (b) 7 h 22 min from 9 h 19 min

min	s
44	80
45	20
- 30	50
14	30

Ans. 14 min 30 s

h	min
8	79
9	19
- 7	22
1	57

Ans. 1 h 57 min

- (c) 25 min 9 s from 4 h 16 min 7 s (d) 3 h 42 min from 6 h

h	min	s
3	75	67
4	16	7
-	25	9
3	50	58

Ans. 3 h 50 min 58 s

h	min
5	60
6	00
- 3	42
2	18

Ans. 2 h 18 min



Exercise 10C

1. Multiply the following :

- (a) 4 min 20 s by 2

min	s
4	20
×	2
8	40

Ans. 8 min 40 s

- (b) 2 h 37 min 23 s by 5

h	min	s
2	37	23
	×	5
10	185	115

Ans. 13 h 06 min 55 sec

115 sec = 1 min 55 sec
 So, 185 min + 1 min = 186 min
 186 min = 3 h 06 min
 So, 10 h + 3 h = 13 h

(c) 8 h 16 min 14 s \times 7

h	min	s
8	16	14
	\times	7
56	112	98

Ans. 57 h 53 min 38 sec

98 sec = 1 min 38 sec
 So, 112 min + 1 min = 113 min
 113 min = 1 h 53 min
 So, 56 h + 1 h = 57 h

(d) 1 h 15 min 10 s \times 9

h	min	s
1	15	10
	\times	9
9	135	90

Ans. 11 h 16 min 30 sec

90 sec = 1 min 30 sec
 So, 135 min + 1 min = 136 min
 136 min = 2 h 16 min
 So, 9 h + 2 h = 11 h

(e) 3 h 10 min by 4

h	min
3	10
\times	4
12	40

Ans. 12 h 40 min

(f) 5 h 20 min \times 4

h	min
5	20
\times	4
20	80

Ans. 21 h 20 min

80 min = 1 h 20 min
 So, 20 h + 1 h = 21 h

2. Divide the following :

(a) 20 min 40 s \div 4

	min	s
	5	10
4 $\overline{)$	20	40
	-20	
	0	4
		-4
		00

Ans. 5 min 10 s

(b) 9 h 24 min 36 s \div 3

	h	min	s
	3	08	12
3 $\overline{)$	9	24	36
	-9		
	0	24	
		-24	
		0	3
			-3
			06
			-6
			0

Ans. 3 h 08 min 12 s

(c) $15 \text{ h } 50 \text{ min } 40 \text{ s} \div 5$

	h	min	s
	3	10	08
5)	15	50	40
	-15		
	0	5	
		-5	
		00	40
			-40
			0

Ans. 3 h 10 min 08 sec

(d) $16 \text{ h } 3 \text{ min } 39 \text{ s} \div 3$

	h	min	s
	5	21	13
3)	16	3	39
	-15		
	1	→ 63	
		-63	
		0	3
			-3
			09
			-9
			0

Ans. 5 h 21 min 13 sec

(e) $24 \text{ h } 12 \text{ min } 12 \text{ s} \div 6$

	h	min	s
	4	02	02
6)	24	12	12
	-24		
	0	12	
		-12	
		0	12
			-12
			0

Ans. 4 h 2 min 2 s

(f) $11 \text{ h } 6 \text{ min } 5 \text{ s} \div 5$

	h	min	s
	2	13	13
5)	11	6	5
	-10		
	1	→ 66	
		-65	
		1	→ 65
			-65
			0

Ans. 2 h 13 min 13 s

3. A function started = 5 : 30 p.m.

A function lasted = 2 h 40 min

Finish time at function = 5 : 30 + 2 : 40
= 8 : 10 p.m.

h	min
5	30
+ 2	40
7	70
+ 1	- 60
8	10

4. A football match finished = 8 : 45 p.m.

The match took = 3 h 30 min

A football match start = 8 : 45 – 3 : 30

$$= 5 : 15 \text{ p.m.}$$

h	min
8	45
– 3	30
5	15

5. A carpenter made 6 equal boxes = 6 h 30 min

A carpenter time spend making each box

$$= 6 \text{ h } 30 \text{ min} \div 6$$

$$= 1 \text{ h } 5 \text{ min}$$

h	min
1	05
6) 6	30
– 6	
0	30
	– 30
	0



Maths in Everyday Life

Observation, Interpersonal Skills

Divya went out for shopping = 11:10 a.m.

Divya reached home = 5:00 p.m.

Divya time spend outside = 11:10 a.m. + 5:00 p.m.

$$= 6 \text{ hours } 10 \text{ minutes}$$

Apply Your Learning

Critical and Logical thinking, Observation

(a) 12:30, **1:05**, 1:40, 2:15, 2:50

(b) 6:05, 6:50, **7:35**, 8:20, 9:05

Think, Solve and Learn

Problem-solving, Applicative Thinking

Rajat and Siya went on walk with their pet dog Tomy.

Siya took Tomy to the playground in the morning = 1 h 15 m

Rajat took Tomy to the playground in the evening = 1 h 54 m

The total time spent by Tomy in the playground = 1 h 15 m + 1 h 54 m

$$= 3 \text{ h } 9 \text{ m}$$

h	min
1	15
+ 1	54
2	69
+ 1	– 60
3	09

11

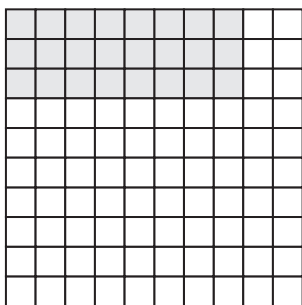
Percentage



Exercise 11A

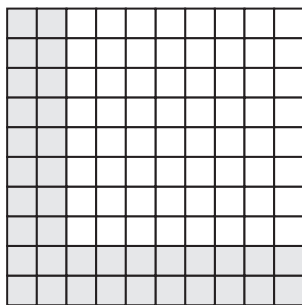
1. What percentage of the square is shaded?

(a)



$$\frac{24}{100} = 24\%$$

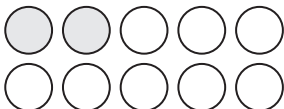
(b)



$$\frac{36}{100} = 36\%$$

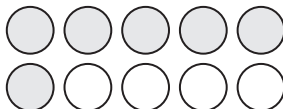
2. Write the shaded part as percentage.

(a)



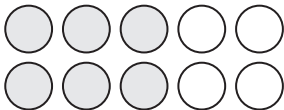
$$\frac{2}{10} = \frac{1}{5} = 20\%$$

(b)



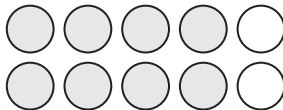
$$\frac{6}{10} = \frac{3}{5} = 60\%$$

(c)



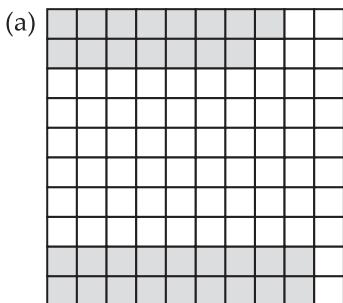
$$\frac{6}{10} = \frac{3}{5} = 60\%$$

(d)

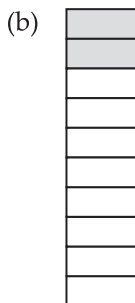


$$\frac{8}{10} = \frac{4}{5} = 80\%$$

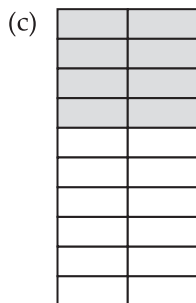
3. Show the % in blocks.



15% pink and 18% blue



20%



40%

4. Fill in the blanks :

(a) 23 out of 100 = **23%**

(b) 14 out of 28 = **50%**

(c) $\frac{15}{100} = \mathbf{15\%}$

(d) $\frac{26}{100} = \mathbf{26\%}$

(e) $\frac{4}{5} = \mathbf{80\%}$

(f) $\frac{5}{9} = \mathbf{55\% \text{ (approx)}}$

5. Write as fraction in lowest term.

(a) $30\% = \frac{30}{100} = \frac{3}{10}$

(b) $13\frac{1}{2}\% = \frac{27}{2}\% = \frac{27}{200}$

(c) $7.25\% = \frac{725}{10000} = \frac{29}{400}$

6. Write as a decimal fraction.

(a) $8\% = \frac{8}{100} = 0.08$

(b) $57\frac{1}{2}\% = \frac{115}{200} = 0.575$

(c) $15\% = \frac{15}{100} = 0.15$

7. Write 'T' for 'True' and 'F' for false :

(a) 249 paise = 24% of a rupee

F

(b) 30 cm = 3% of a metre

F

(c) 200 m = 2% of a km

F

(d) 400 mL = 40% of a litre

T

(e) 10% of 70 = 10

F

(f) 30% of 750 km = 225 km

T

8. Write >, < or = :

(a) 20% of 30 $\boxed{=}$ 30% of 20

(b) 40% of 225 $\boxed{>}$ 20% of 460

(c) 6% of Rs 450 $\boxed{<}$ 10% of ₹ 320

(d) 36% of 450 mL $\boxed{>}$ 45% of 360 mL

9. Write as a percentage :

(a) $\frac{83}{100} = 83\%$

(b) $\frac{39}{40} = \frac{39}{40} \times 100 = \frac{39 \times 5}{2}$
 $= \frac{195}{2} = 97.5\%$

(c) $\frac{3}{25} = \frac{3}{25} \times 100$
 $= 3 \times 4 = 12\%$

(d) $\frac{7}{12} = \frac{7}{12} \times 100$
 $= \frac{7 \times 25}{3}$
 $= \frac{175}{3} = 58.33\%$

(e) $0.18 = \frac{18}{100} \times 100$
 $= 18 \times 1 = 18\%$

(f) $0.007 = \frac{7}{1000} \times 100$
 $= \frac{7}{10} = 0.7\%$

10. Write as a fraction in lowest term and a decimal fraction :

(a) $35\% = \frac{35}{100}$
 $= \frac{7}{20}$ and 0.35

(b) $14.5\% = \frac{145}{10} \times \frac{1}{100}$
 $= \frac{29}{200}$ and 0.145

(c) $20\% = \frac{20}{100}$
 $= \frac{1}{5}$ and 0.2

(d) $16\% = \frac{16}{100}$
 $= \frac{4}{25}$ and 0.16

(e) $4.5\% = \frac{45}{10} \times \frac{1}{100}$
 $= \frac{9}{200}$ and 0.045

11. Write a percentage :

(a) 7 p as % of ₹ 1

$$\therefore 100 \text{ paise} = 1 \text{ rupee}$$

$$\therefore 7 \text{ paise} = \frac{7}{100} \text{ of a rupee}$$

$$= 7\% \text{ of a rupee}$$

(b) 8 cm as % of 1 m

$$\therefore 100 \text{ cm} = 1 \text{ m}$$

$$\therefore 8 \text{ cm} = \frac{8}{100} \text{ of a metre}$$

$$= 8\% \text{ of a metre}$$

(c) 7 g as % of 1 kg

$$\therefore 1000 \text{ g} = 1 \text{ kg}$$

$$\therefore 7 \text{ g} = \frac{7}{1000} \text{ of a kg}$$

$$= \frac{7}{10} \times \frac{1}{100} \text{ of a kg}$$

$$= 0.7 \times \frac{1}{100} = 0.7\% \text{ of a kg}$$

12. Find the value of :

$$(a) 20\% \text{ of } 50 = \frac{20}{100} \times 50$$

$$= 10$$

$$(b) 15\% \text{ of } 75 = \frac{15}{100} \times 75$$

$$= \frac{15 \times 3}{4} = \frac{45}{4} = 11.25$$

$$(c) 10\% \text{ of ₹ } 450 = \frac{10}{100} \times ₹ 450$$

$$= ₹ \frac{4500}{100} = ₹ 45$$



Exercise 11B

1. Cost of each bat = ₹ 300

Number of bat = 4

Total cost of bats = ₹ 300 × 4

$$= ₹ 1200$$

Sold of each bat = ₹ 325

Sold of 4 bats = ₹ 325 × 4

$$= ₹ 1300$$

Profit = ₹ 1300 – ₹ 1200

$$= ₹ 100$$

Profit percent = $\frac{100}{1200} \times 100$

$$= \frac{10000}{1200} \%$$

$$= \frac{25}{3} \%$$

2. Asha scored = 480

Marks out = 600

$$\begin{aligned}\text{The marks percentage} &= \frac{480}{600} \times 100 \\ &= 80\%\end{aligned}$$

3. Total number of students of a school = 1300

Only present students on Republic day = 75%

$$\begin{aligned}\text{Number of students on Republic day} &= \frac{75}{100} \times 1300 \\ &= 75 \times 13 = 975 \text{ students}\end{aligned}$$

4. Madhu spent 80% of ₹ 320 on earplug.

$$\begin{aligned}\text{Cost of the earplug} &= \frac{80}{100} \times ₹ 320 \\ &= 8 \times ₹ 32 = ₹ 256\end{aligned}$$

5. Number of students go to Nainital in a school tour = 600

The first bus to Nainital will start when 30% of the student report to school.

$$\text{Number of students} = 600 \times \frac{30}{100} = 180$$

Students wait of bus = $180 - 150 = 30$ students

6. The number of men working in a factory is 75% of the number of women in the factory.

Number of women = 1420

$$\begin{aligned}\text{Number of men} &= 1420 \times \frac{75}{100} \\ &= 355 \times 3 = 1065\end{aligned}$$

$$\begin{aligned}\text{Total number of women and men in the factory} &= 1420 + 1065 \\ &= 2485\end{aligned}$$

7. Mahesh weighs = 80 kg

$$\begin{aligned}\text{The weight of his wife} &= 70\% \text{ of } 80 \text{ kg} \\ &= \frac{70}{100} \times 80 = \frac{5600}{100} \\ &= 56 \text{ kg}\end{aligned}$$

$$\begin{aligned}\text{The difference between their weights} &= 80 \text{ kg} - 56 \text{ kg} \\ &= 24 \text{ kg}\end{aligned}$$

8. Tanu scored = 60

Sagar scored = 90% of 60

$$= \frac{90}{100} \times 60 = \frac{5400}{100} = 54$$

Kalpna Scored = 50% of 54

$$= \frac{50}{100} \times 54 = \frac{2700}{100} = 27$$



Maths in Everyday Life

Observation, Interpersonal Skills

Cost of the saree = ₹ 1,500

60% off on every time.

$$\text{Discount on saree} = \frac{60}{100} \times 1500$$

$$= 60 \times 15$$

$$= ₹ 900$$

Apply Your Learning

Critical and Logical thinking, Applicative Thinking

Original price of a pair of shoes = ₹ 2,598

Reduced = 20% in sale

$$\begin{aligned} \text{New price of the pair of shoes} &= \frac{20}{100} \times 2598 \\ &= \frac{2598}{5} = 519.6 \end{aligned}$$

$$\begin{aligned} \text{New price of shoes} &= 2598 - 519.6 \\ &= 2078.40 \end{aligned}$$

Think, Solve and Learn

Problem-solving, Observation

A 100 g packet of chips contains 742 mg of sodium.

$$\therefore 1 \text{ g} = 1000 \text{ mg}$$

$$\therefore 100 \text{ g} = 100 \times 1000 \text{ mg} = 100000 \text{ mg}$$

$$\begin{aligned} \text{Percentage of sodium} &= \frac{742}{100000} \times 100 = \frac{742}{1000} \\ &= 0.742\% \end{aligned}$$

250 g packet of bread contains 890 mg of sodium.

$$\therefore 1 \text{ g} = 1000 \text{ mg}$$

$$\therefore 250 \text{ g} = 250 \times 1000 \text{ mg} = 250000 \text{ mg}$$

$$\begin{aligned}\text{Percentage of sodium} &= \frac{890}{250000} \times 100 = \frac{890}{2500} \\ &= 0.356\%\end{aligned}$$

$$\text{Compare} = 0.742\% > 0.356\%$$



Patterns



Exercise 12

1. Fill in the missing numbers & describe the rule :

(a) $\frac{1}{4}$ $\frac{1}{2}$ $\frac{3}{4}$ 1 $\frac{5}{4}$ $\frac{3}{2}$

Rule : $\frac{1}{4}$ is added to last term.

(b) 4 8 12 16 20 24

Rule : 4 is added to last term.

(c) $\frac{5}{81}$ $\frac{5}{27}$ $\frac{5}{9}$ $\frac{5}{3}$ 5 15

Rule : 3 is multiplied to last term.

(d) 100 90 80 70 60

Rule : 10 is subtracted from last term.

2. Find the pattern in the differences of consecutive pairs and fill in the missing numbers :

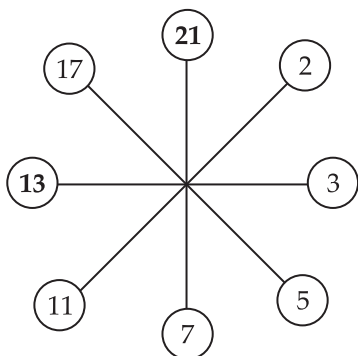
(a) 5 13 29 61 125 [Terms $\times 2 + 3$]

(b) 10 18 28 40 54 [Add : 8, 10, 12, 14, ...]

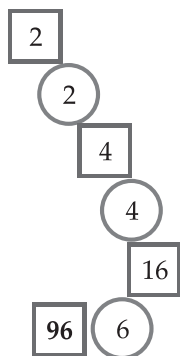
(c) 3 11 43 171 683 [Term $\times 4 - 1$]

3. Study the pattern in each and fill in the blanks :

(a)



(b)



4. Study the pattern and fill in the blanks :

$$(3 \times 3) - (2 \times 2) = 5$$

$$(4 \times 4) - (3 \times 3) = 7$$

$$(5 \times 5) - (4 \times 4) = 9$$

Rule: (Number \times Number) – (Previous Number \times Previous Number)

$$(a) (6 \times 6) - (5 \times 5) = 36 - 25 = 11$$

$$(b) (7 \times 7) - (6 \times 6) = 49 - 36 = 13$$

5. Study the pattern and fill in the blanks :

$$15 \times 15 = 225$$

$$25 \times 25 = 625$$

$$(a) 35 \times 35 = 1225 \text{ (Rule } 3 \times 4 = 12)$$

$$(b) 45 \times 45 = 2025 \text{ (Rule } 4 \times 5 = 20)$$

$$(c) 55 \times 55 = 3025 \text{ (Rule } 5 \times 6 = 30)$$

$$(d) 65 \times 65 = 4225 \text{ (Rule } 6 \times 7 = 42)$$



Do yourself.

Apply Your Learning

Critical and Logical thinking, Observation

Find the next two numbers for the given sequences.

(a) 1, 4, 9, 16, 25, **36, 49** .

(b) 1, 3, 6, 10, 15, 21, 28, **36, 45**.

Sudha is unable to complete the given number series :
8, 16, 32, **64**, 128, 256 .

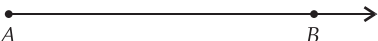


Geometry

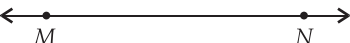


Exercise 13A

1. Look at the figures and fill in the blanks.

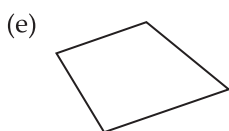
(a)  AB is a **ray** .

(b)  PQ is a **line segment** .

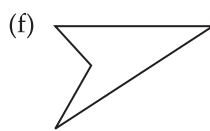
(c)  MN is a **line** .



Number of line segments = **Three**



Number of line segments = **Four**



Number of line segments = **Four**



Number of line segments = **Six**



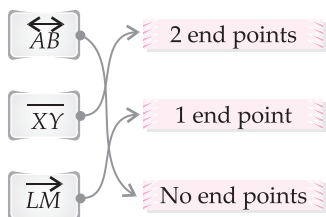
Number of line segments = **Seven**



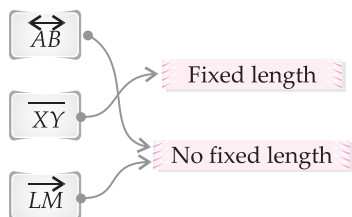
Number of line segments = **Ten**

2. Match these.

(a)



(b)



Exercise 13B

1. Measure the line segments and fill in the blanks :

(a) Do yourself.

(b) Do yourself.

(c) Do yourself.

2. Draw a line segment of length :

(a) Do yourself.

(b) Do yourself.

(c) Do yourself.

3. Draw a diagram of each of the following :

(a) Do yourself.

(b) Do yourself.

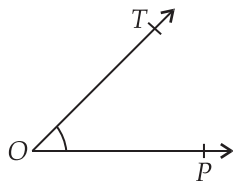
(c) Do yourself.



Exercise 13C

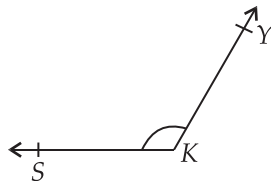
1. Name the angles in each of the following. Also, name the vertex and the arms in each case:

(a)

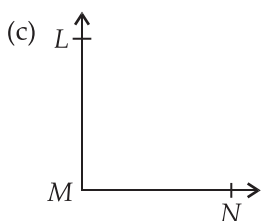


$\angle TOP$

(b)

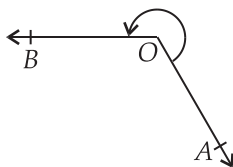


$\angle SKY$



$\angle LMN$

(d)



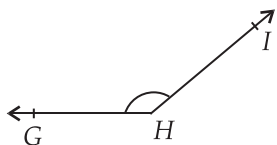
$\angle AOB$

2. Measure the following angles using a protractor and fill in the value :

(a) Do yourself. (b) Do yourself. (c) Do yourself.

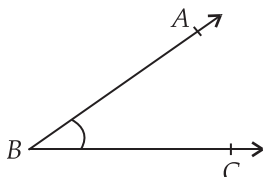
3. Measure each of the following angles and classify them as acute, obtuse or right angle.

(a)



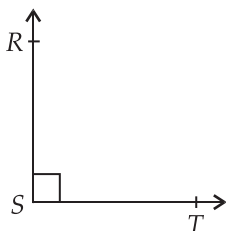
Obtuse angle

(b)



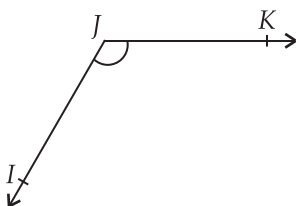
Acute angle

(c)



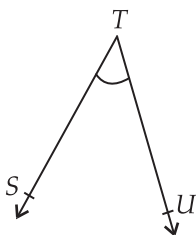
Right angle

(d)



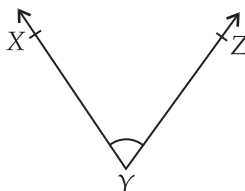
Obtuse angle

(e)



Acute angle

(f)



Acute angle

4. Classify each of the following angles as acute, obtuse, right or reflex angle :

- (a) 86° = Acute angle (b) 43.5° = Acute angle
(c) 90.7° = Obtuse angle (d) 128° = Obtuse angle
(e) 273° = Reflex angle (f) 90° = Right angle
(g) 179° = Obtuse angle (h) 15° = Acute angle
(i) 133° = Acute angle



Exercise 13D

1. Using protractor and scale, construct the following angles.

- (a) Do yourself. (b) Do yourself.
(c) Do yourself. (d) Do yourself.
(e) Do yourself. (f) Do yourself.
(g) Do yourself. (h) Do yourself.

2. Which of the following pairs of angles are complementary?

- (a) $60^\circ, 120^\circ$ (b) $38^\circ, 52^\circ$
 $\Rightarrow 60^\circ + 120^\circ = 180^\circ$ $\Rightarrow 38^\circ + 52^\circ = 90^\circ$
Not complementary angle. Complementary angle.
(c) $63^\circ, 28^\circ$ (d) $90^\circ, 0^\circ$
 $\Rightarrow 63^\circ + 28^\circ = 91^\circ$ $\Rightarrow 90^\circ + 0^\circ = 90^\circ$
Not complementary angle. Complementary angle.
(e) $30^\circ, 50^\circ$ (f) $15^\circ, 75^\circ$
 $\Rightarrow 30^\circ + 50^\circ = 80^\circ$ $\Rightarrow 15^\circ + 75^\circ = 90^\circ$
Not complementary angle. Complementary angle.
(g) $115^\circ, 65^\circ$ (h) $25^\circ, 68^\circ$
 $\Rightarrow 115^\circ + 65^\circ = 180^\circ$ $\Rightarrow 25^\circ + 68^\circ = 93^\circ$
Not complementary angle. Not complementary angle.

3. Which of the following pairs of angles are supplementary?

- (a) $102^\circ, 68^\circ$ (b) $33^\circ, 147^\circ$
 $\Rightarrow 102^\circ + 68^\circ = 170^\circ$ $\Rightarrow 33^\circ + 147^\circ = 180^\circ$
Not supplementary angle. Supplementary angle.

(c) $19^\circ, 163^\circ$

$$\Rightarrow 19^\circ + 163^\circ = 182^\circ$$

Not supplementary angle.

(d) $90^\circ, 90^\circ$

$$\Rightarrow 90^\circ + 90^\circ = 180^\circ$$

Supplementary angle.

(e) $42^\circ, 48^\circ$

$$\Rightarrow 42^\circ + 48^\circ = 90^\circ$$

Not supplementary angle.

(f) $79^\circ, 101^\circ$

$$\Rightarrow 79^\circ + 101^\circ = 180^\circ$$

Supplementary angle.

(g) $10^\circ, 80^\circ$

$$\Rightarrow 10^\circ + 80^\circ = 90^\circ$$

Not supplementary angle.

(h) $30^\circ, 60^\circ$

$$\Rightarrow 30^\circ + 60^\circ = 90^\circ$$

Not supplementary angle.

4. Write the complement of each of the following angles :

(a) 90°

$$\text{Complement of } 90^\circ = (90^\circ - 90^\circ) = 0^\circ$$

Thus, the complement of 90° is 0° .

(b) 65°

$$\text{Complement of } 65^\circ = (90^\circ - 65^\circ) = 25^\circ$$

Thus, the complement of 65° is 25° .

(c) 43°

$$\text{Complement of } 43^\circ = (90^\circ - 43^\circ) = 47^\circ$$

Thus, the complement of 43° is 47° .

(d) 42°

$$\text{Complement of } 42^\circ = (90^\circ - 42^\circ) = 48^\circ$$

Thus, the complement of 42° is 48° .

(e) 38°

$$\text{Complement of } 38^\circ = (90^\circ - 38^\circ) = 52^\circ$$

Thus, the complement of 38° is 52° .

(f) 81°

$$\text{Complement of } 81^\circ = (90^\circ - 81^\circ) = 9^\circ$$

Thus, the complement of 81° is 9° .

(g) 52°

$$\text{Complement of } 52^\circ = (90^\circ - 52^\circ) = 38^\circ$$

Thus, the complement of 52° is 38° .

(h) 56°

$$\text{Complement of } 56^\circ = (90^\circ - 56^\circ) = 34^\circ$$

Thus, the complement of 56° is 34° .

5. Write the supplement of each of the following angles :

(a) 137°

$$\text{Supplement of } 137^\circ = (180^\circ - 137^\circ) = 43^\circ$$

Thus, the supplement of 137° is 43° .

(b) 18°

$$\text{Supplement of } 18^\circ = (180^\circ - 18^\circ) = 162^\circ$$

Thus, the supplement of 18° is 162° .

(c) 129°

$$\text{Supplement of } 129^\circ = (180^\circ - 129^\circ) = 51^\circ$$

Thus, the supplement of 129° is 51° .

(d) 103°

$$\text{Supplement of } 103^\circ = (180^\circ - 103^\circ) = 77^\circ$$

Thus, the supplement of 103° is 77° .

(e) 83°

$$\text{Supplement of } 83^\circ = (180^\circ - 83^\circ) = 97^\circ$$

Thus, the supplement of 83° is 97° .

(f) 101°

$$\text{Supplement of } 101^\circ = (180^\circ - 101^\circ) = 79^\circ$$

Thus, the supplement of 101° is 79° .

(g) 85°

$$\text{Supplement of } 85^\circ = (180^\circ - 85^\circ) = 95^\circ$$

Thus, the supplement of 85° is 95° .

(h) 49°

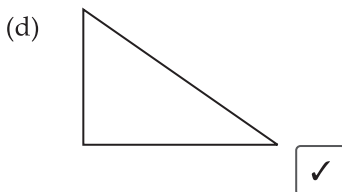
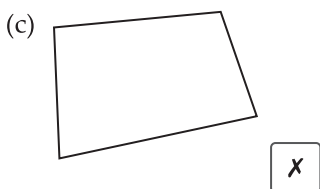
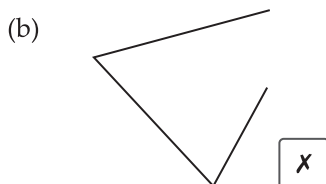
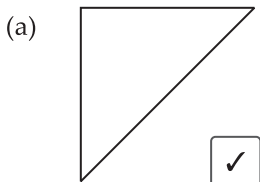
$$\text{Supplement of } 49^\circ = (180^\circ - 49^\circ) = 131^\circ$$

Thus, the supplement of 49° is 131° .

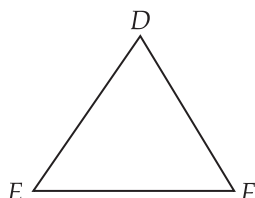


Exercise 13E

1. Tick (✓) the triangles.

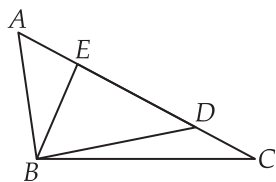


2. Look at the figure and fill in the blanks.

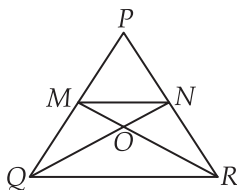


- (a) The triangle can be written symbolically as Δ .
- (b) The sides of the triangle are DE , EF , FD .
- (c) The vertices of the triangle are D , E , F .
- (d) The angles of the triangle are $\angle DEF$, $\angle EFD$, $\angle FDE$.

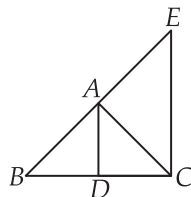
3. How many triangles are there in each figure? Write their names in your notebook.



(a)

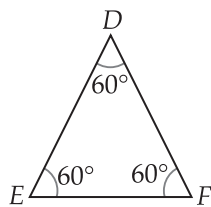
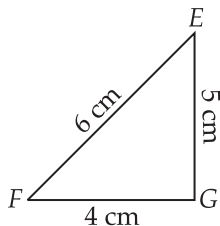
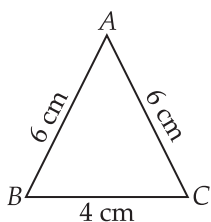


(b)

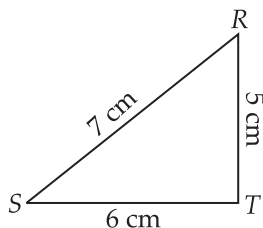
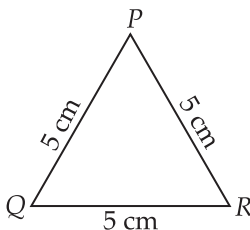
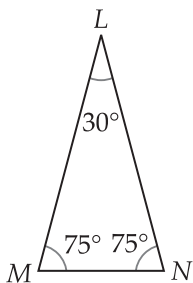


(c)

4. Write 'scalene Δ ', 'equilateral Δ ' or 'isosceles Δ '.

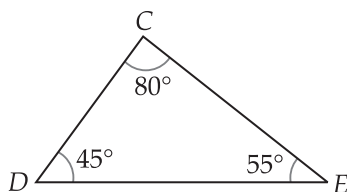
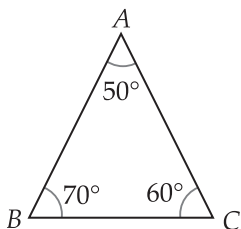


- (a) Isosceles triangle (b) Scalene triangle (c) Equilateral triangle

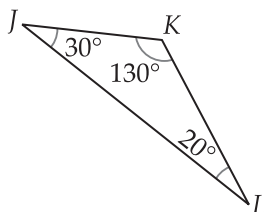
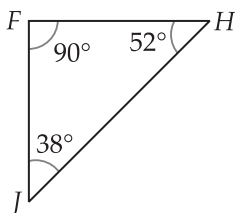


- (d) Isosceles triangle (e) Equilateral triangle (f) Scalene triangle

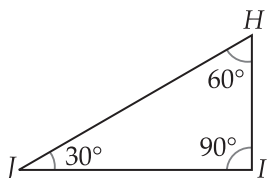
5. Write 'acute-angled Δ ', 'obtuse-angled Δ ' or 'right-angled Δ '.



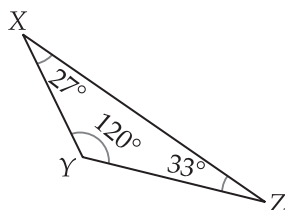
- (a) Acute angled triangle (b) Acute angled triangle



- (c) Right angled triangle (d) Obtuse angled triangle



(e) Right angled triangle

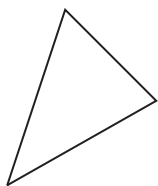


(f) Obtuse angled triangle

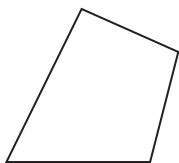


Exercise 13F

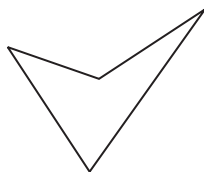
1. Tick (✓) the quadrilaterals.



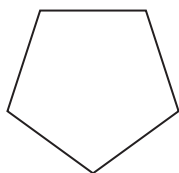
(a) ✗



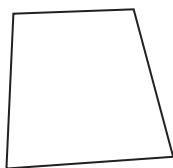
(b) ✓



(c) ✓



(d) ✗



(e) ✓

2. Look at the figure and fill in the blanks.

(a) The figure $ABCD$ is called a **quadrilateral**.

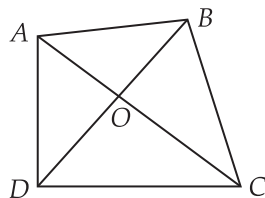
(b) Its sides are AB , BC , CD , DA .

(c) Its vertices are A , B , C , D .

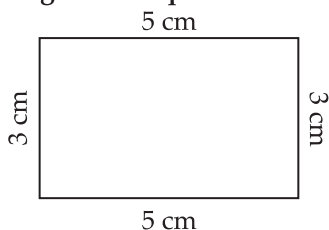
(d) Its diagonals are AC , BD .

(e) The triangles in the figure are

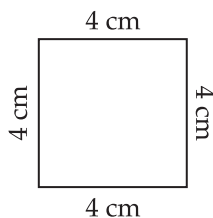
$\triangle ACD$, $\triangle ABC$, $\triangle AOD$, $\triangle COD$, $\triangle AOB$, $\triangle BOC$, $\triangle ABD$, $\triangle BDC$.



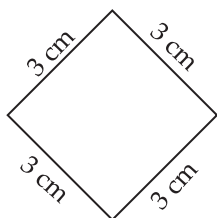
3. Each angle of the given quadrilaterals is a right angle. Pick the rectangles and square.



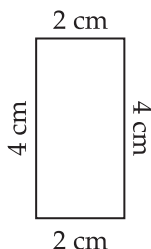
(a) **Rectangle**



(b) **Square**



(c) **Square**



(d) **Rectangle**

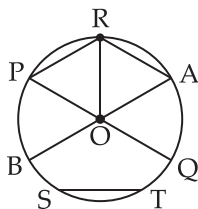
4. Do yourself.



Exercise 13G

1. In the given figure, name :

- (a) radii of the circle = OP, OR, OA, OB, OQ
- (b) chords of the circle = PR, RA, ST
- (c) diameters of the circle = AB, PQ



2. Fill in the blanks :

- (a) If P and Q are two points on a circle, then the line segment PQ is called a **chord** of the circle.
- (b) A diameter is the **longest** chord of the circle.
- (c) Perimeter of a circle is called its **circumference**.
- (d) **Half** of a circle is called a semi-circle.
- (e) A line segment passing through the centre of a circle with its endpoints on the circle is a **diameter** of the circle.

3. Do yourself.

4. Find the diameter of the circle whose radius is :

(a) 6 cm

$$\begin{aligned}\text{Diameter} &= 2 \times \text{radius} \\ &= 2 \times 6 \text{ cm} \\ &= 12 \text{ cm}\end{aligned}$$

(b) 5.8 cm

$$\begin{aligned}\text{Diameter} &= 2 \times \text{radius} \\ &= 2 \times 5.8 \text{ cm} \\ &= 11.6 \text{ cm}\end{aligned}$$

(c) 2.9 cm

$$\begin{aligned}\text{Diameter} &= 2 \times \text{radius} \\ &= 2 \times 2.9 \text{ cm} \\ &= 5.8 \text{ cm}\end{aligned}$$

(d) 7.3 cm

$$\begin{aligned}\text{Diameter} &= 2 \times \text{radius} \\ &= 2 \times 7.3 \text{ cm} \\ &= 14.6 \text{ cm}\end{aligned}$$

5. Find the radius of a circle whose diameter is :

(a) 9 cm

$$\begin{aligned}\text{Radius} &= \frac{1}{2} \times \text{diameter} \\ &= \frac{1}{2} \times 9 \text{ cm} = 4.5 \text{ cm}\end{aligned}$$

(b) 8.8 cm

$$\begin{aligned}\text{Radius} &= \frac{1}{2} \times \text{diameter} \\ &= \frac{1}{2} \times 8.8 \text{ cm} = 4.4 \text{ cm}\end{aligned}$$

(c) 10.8 cm

$$\begin{aligned}\text{Radius} &= \frac{1}{2} \times \text{diameter} \\ &= \frac{1}{2} \times 10.8 \text{ cm} \\ &= 5.4 \text{ cm}\end{aligned}$$

(d) 18 cm

$$\begin{aligned}\text{Radius} &= \frac{1}{2} \times \text{diameter} \\ &= \frac{1}{2} \times 18 \text{ cm} \\ &= 9 \text{ cm}\end{aligned}$$

6. Do yourself.

7. Do yourself.



Maths in Everyday Life

Observation, Interpersonal Skills

Do yourself.

Apply Your Learning

Critical and Logical thinking, Observation

Do yourself.

Think, Solve and Learn

Problem-solving, Applicative thinking

Radius of a circular park = 50 m

Monika takes rounds along the boundary of the park everyday = 2

Circumference = $2\pi r$

$$= 2 \times 3.14 \times 50 = 314 \text{ m}$$

Monika distance cover in a week = $7 \times 314 \text{ m}$

(\because 1 week = 7 days)

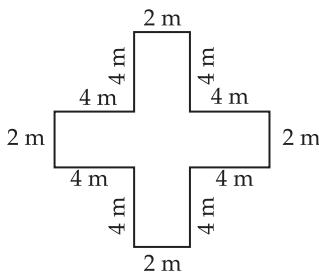
$$= 2198 \text{ m}$$



Exercise 14A

1. Find the perimeter of the following :

(a)

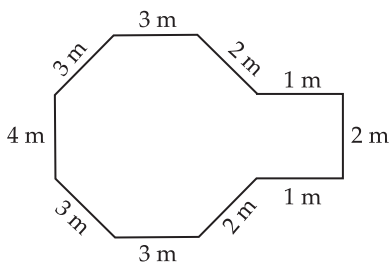


∴ Perimeter of the given figure

$$= (2 + 4 + 4 + 2 + 4 + 4 + 2 + 4 + 4 + 2 + 4 + 4) \text{ m}$$

$$= 40 \text{ m}$$

(b)



∴ Perimeter of the given figure

$$= (3 + 2 + 1 + 2 + 1 + 2 + 3 + 3 + 4 + 3) \text{ m}$$

$$= 24 \text{ m}$$

2. Find the perimeter of each of the following triangles with sides :

(a) 8 cm, 7 cm, 5 cm

$$\text{Perimeter of triangle} = 8 \text{ cm} + 7 \text{ cm} + 5 \text{ cm}$$

$$= 20 \text{ cm}$$

(b) 8.5 cm, 3.5 cm, 6 cm

$$\begin{aligned}\text{Perimeter of triangle} &= 8.5 \text{ cm} + 3.5 \text{ cm} + 6 \text{ cm} \\ &= 18 \text{ cm}\end{aligned}$$

(c) 90 mm, 80 mm, 10 cm

$$\therefore 10 \text{ mm} = 1 \text{ cm}$$

$$\therefore 90 \text{ mm} = 90 \div 10 \text{ cm} = 9 \text{ cm}$$

$$\therefore 80 \text{ mm} = 80 \div 10 \text{ cm} = 8 \text{ cm}$$

$$\begin{aligned}\text{Perimeter of triangle} &= 9 \text{ cm} + 8 \text{ cm} + 10 \text{ cm} \\ &= 27 \text{ cm}\end{aligned}$$

(d) 4.5 cm, 6.3 cm, 8 cm

$$\begin{aligned}\text{Perimeter of triangle} &= 4.5 \text{ cm} + 6.3 \text{ cm} + 8 \text{ cm} \\ &= 18.8 \text{ cm}\end{aligned}$$

3. Find the perimeter of :

(a) Equal sides = 6.2 cm, Third side = 8 cm

$$\begin{aligned}\text{Perimeter of isosceles triangle} &= 6.2 \text{ cm} + 6.2 \text{ cm} + 8 \text{ cm} \\ &= 20.4 \text{ cm}\end{aligned}$$

(b) Each sides = 8.2 cm

$$\begin{aligned}\text{Perimeter of equilateral triangle} &= 8.2 \text{ cm} + 8.2 \text{ cm} + 8.2 \text{ cm} \\ &= 24.6 \text{ cm}\end{aligned}$$

4. The perimeter of a triangle = 24 cm

$$\text{Sides} = 4.5 \text{ cm and } 9 \text{ cm}$$

$$\text{Third side} = ?$$

$$\text{Perimeter of a triangle} = \text{Side} + \text{Side} + \text{Side}$$

$$24 \text{ cm} = 4.5 \text{ cm} + 9 \text{ cm} + \text{third side}$$

$$\begin{aligned}\text{Third side} &= 24 \text{ cm} - 13.5 \text{ cm} \\ &= 10.5 \text{ cm}\end{aligned}$$

5. The perimeter of an equilateral triangle = 18.6 cm

$$\text{Perimeter of an equilateral triangle} = \text{Side} + \text{Side} + \text{Side}$$

$$18.6 \text{ cm} = 3 \text{ sides}$$

$$\text{Sides} = \frac{18.6}{3} \text{ cm} = 6.2 \text{ cm}$$

6. Find the perimeter of each of the rectangles with the following dimensions.

(a) Length = 20 cm, Breadth = 18 cm

$$\begin{aligned}\text{Perimeter of a rectangle} &= 2(\text{length} + \text{breadth}) \\ &= 2(20 + 18) \\ &= 2 \times 38 \\ &= 76 \text{ cm}\end{aligned}$$

(b) Length = 30 m, Breadth = 16.5 m

$$\begin{aligned}\text{Perimeter of a rectangle} &= 2(\text{length} + \text{breadth}) \\ &= 2(30 + 16.5) \\ &= 2 \times 46.5 \\ &= 93 \text{ cm}\end{aligned}$$

7. Perimeter of a rectangle = 100 m

$$\text{Length} = 28 \text{ m}$$

$$\begin{aligned}\therefore \text{Length} + \text{Breadth} &= \frac{1}{2} \times \text{Perimeter} \\ &= \frac{1}{2} \times 100 = 50\end{aligned}$$

$$\text{Length} + \text{Breadth} = 50 \text{ m}$$

$$\text{Now, Length} = 28 \text{ m}$$

$$\text{Breadth} = 50 - 28 = 22 \text{ m}$$

8. Perimeter of a square park = 100 m

$$\text{Perimeter of a square park} = 4 \text{ side}$$

$$100 \text{ m} = 4 \times \text{side}$$

$$\text{Side} = \frac{100}{4} = 25 \text{ m}$$

9. Find the perimeter of a square, whose dimensions are :

(a) 18 cm

$$\begin{aligned}\text{Perimeter of a square} &= 4 \text{ side} \\ &= 4 \times 18 \\ &= 72 \text{ cm}\end{aligned}$$

(b) 12.5 cm

$$\begin{aligned}\text{Perimeter of a square} &= 4 \text{ side} \\ &= 4 \times 12.5 \\ &= 50 \text{ cm}\end{aligned}$$

(c) 40 m

$$\begin{aligned}\text{Perimeter of a square} &= 4 \text{ side} \\ &= 4 \times 40 = 160 \text{ m}\end{aligned}$$

(d) 4 m 25 cm = 4.25 m

$$\begin{aligned}\text{Perimeter of a square} &= 4 \text{ side} \\ &= 4 \times 4.25 = 17 \text{ m}\end{aligned}$$

10. Length of a rectangular plot = 25 m

Breadth of a rectangular plot = 21 m

$$\begin{aligned}\text{Perimeter of a rectangular plot} &= 2(\text{length} + \text{breadth}) \\ &= 2 \times (25 + 21) \\ &= 2 \times 46 = 92 \text{ m}\end{aligned}$$

Cost of constructing the wall per metre = ₹ 180

$$\begin{aligned}\text{Total cost of constructing the wall} &= ₹ 180 \times 92 \\ &= ₹ 16560\end{aligned}$$

11. Sides of a triangular field = 48 m, 80 m and 100 m

$$\begin{aligned}\text{Perimeter of a triangular field} &= 48 \text{ m} + 80 \text{ m} + 100 \text{ m} \\ &= 228 \text{ m}\end{aligned}$$

12. A square park of side = 85 m

$$\begin{aligned}\text{Perimeter of a square park} &= 4 \times \text{side} \\ &= 4 \times 85 = 340 \text{ m}\end{aligned}$$

Shalu runs around a square park = 6 times

$$\text{Shalu cover distance} = 340 \text{ m} \times 6 = 2040 \text{ m}$$



Exercise 14B

1. Find the area of the rectangles with dimensions.

(a) Length = 18 cm, Breadth = 12 cm

$$\begin{aligned}\text{Area of rectangle} &= \text{length} \times \text{breadth} \\ &= 18 \text{ cm} \times 12 \text{ cm} \\ &= 216 \text{ cm}^2\end{aligned}$$

(b) Length = 18.5 cm, Breadth = 10 cm

$$\begin{aligned}\text{Area of rectangle} &= \text{length} \times \text{breadth} \\ &= 18.5 \text{ cm} \times 10 \text{ cm} \\ &= 185 \text{ cm}^2\end{aligned}$$

(c) Length = 1.6 m, Breadth = 80 cm

$$\therefore 100 \text{ cm} = 1 \text{ m}$$

$$\therefore 80 \text{ cm} = 80 \div 100 \text{ m} = 0.8 \text{ m}$$

Area of rectangle = length \times breadth

$$= 1.6 \text{ m} \times 0.8 \text{ m}$$

$$= 1.28 \text{ m}^2$$

(d) Length = 400 mm, Breadth = 18 cm

$$\therefore 10 \text{ mm} = 1 \text{ cm}$$

$$\therefore 400 \text{ mm} = 400 \div 10 \text{ cm} = 40 \text{ cm}$$

Area of rectangle = length \times breadth

$$= 40 \text{ cm} \times 18 \text{ cm} = 720 \text{ cm}^2$$

2. Find the area of the square of side :

(a) 14 cm

Area of square = side \times side

$$= 14 \text{ cm} \times 14 \text{ cm}$$

$$= 196 \text{ cm}^2$$

(b) 35 m

Area of square = side \times side

$$= 35 \text{ m} \times 35 \text{ m}$$

$$= 1225 \text{ m}^2$$

(c) 18.7 cm

Area of square = side \times side

$$= 18.7 \text{ cm} \times 18.7 \text{ cm}$$

$$= 349.69 \text{ cm}^2$$

(d) 3 m 15 cm = 3.15 m

Area of square = side \times side

$$= 3.15 \text{ m} \times 3.15 \text{ m}$$

$$= 9.9225 \text{ m}^2$$

3. Area of rectangle = 800 sq. cm

Breadth = 25 cm, Length = ?

$$\text{Length} = \frac{\text{Area of rectangle}}{\text{Breadth}}$$

$$\text{Length} = \frac{800}{25} = 32 \text{ cm}$$

4. Area of rectangle = 72 sq. cm

Length = 12 m, Breadth = ?

$$\begin{aligned}\text{Breadth} &= \frac{\text{Area of rectangle}}{\text{Length}} \\ &= \frac{72}{12} = 6 \text{ m}\end{aligned}$$

5. Dimensions of tiles = 15 cm \times 10 cm
= 150 cm²

$$\therefore 100 \text{ cm} = 1 \text{ m}$$

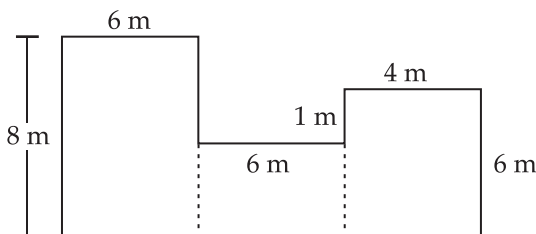
$$\therefore 150 \text{ cm} = 150 \div 100 \text{ m} = 1.5 \text{ m}^2$$

Length of a floor = 18 m

Wide of a floor = 10 m

$$\begin{aligned}\text{Area} &= \text{length} \times \text{wide} \\ &= 18 \text{ m} \times 10 \text{ m} = 180 \text{ m}^2\end{aligned}$$

- 6.



$$\text{First area of the house} = 8 \text{ m} \times 6 \text{ m} = 48 \text{ m}^2$$

$$\text{Second area of the house} = 5 \text{ m} \times 6 \text{ m} = 30 \text{ m}^2$$

$$\text{Third area of the house} = 4 \text{ m} \times 6 \text{ m} = 24 \text{ m}^2$$

$$\begin{aligned}\text{Total area of the house} &= (48 + 30 + 24) \text{ m}^2 \\ &= 102 \text{ m}^2\end{aligned}$$

7. Each side of a square hall = 60 m

$$\begin{aligned}\text{Area of a square hall} &= \text{side} \times \text{side} \\ &= 60 \text{ m} \times 60 \text{ m} \\ &= 3600 \text{ m}^2\end{aligned}$$

Cost of tile the floor per square metre = ₹ 9.50

$$\begin{aligned}\text{Total cost of tiles} &= 3600 \times ₹ 9.50 \\ &= ₹ 34200\end{aligned}$$

8. Area of first region = $50 \text{ cm} \times 40 \text{ cm}$
 $= 2000 \text{ cm}^2$

Area of second region = $40 \text{ cm} \times 30 \text{ cm}$
 $= 1200 \text{ cm}^2$

Area of shaded region = $2000 \text{ cm}^2 - 1200 \text{ cm}^2$
 $= 800 \text{ cm}^2$



Exercise 14C

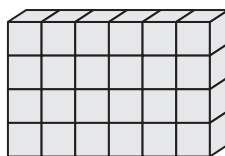
1. Find the volume of each cuboid by counting the unit cubes of volume 1 cu. cm.

(a)



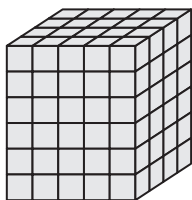
Volume = $1 \times 6 = 6$ cu. cm

(b)



Volume = $4 \times 6 = 24$ cu. cm

(c)



Volume = $4 \times 30 = 120$ cu. cm

2. Find the volume of each.

(a) Volume = length \times breadth \times height
 $= 5 \text{ cm} \times 4 \text{ cm} \times 2.5 \text{ cm}$
 $= 50 \text{ cm}^3$

(b) Volume = length \times breadth \times height
 $= 15 \text{ cm} \times 10 \text{ cm} \times 6 \text{ cm}$
 $= 900 \text{ cm}^3$

(c) Volume = length \times breadth \times height
 $= 12 \text{ cm} \times 8 \text{ cm} \times 2.5 \text{ cm}$
 $= 240 \text{ cm}^3$

3. Match the volume (V) of each cube with its edge (E).

V	E
(a) 729 cu. cm	→ 5 cm
(b) 125 cu. cm	→ 9 cm
(c) 343 cu. cm	→ 12 m
(d) 3375 cu. m	→ 7 cm
(e) 1728 cu. m	→ 15 m

4. Fill in the volume for each cuboid.

(L = length, B = breadth, H = height, V = volume)

	(a)	(b)	(c)	(d)	(e)
L	6 m	10.5 m	35 cm	50 cm	40 cm
B	4 m	6 m	20 cm	30 cm	26.5 cm
H	3.5 m	5 m	12.5 cm	25 cm	12 cm
V	84 m³	315 m³	8750 cm³	37500 cm³	12720 cm³

5. Length of a swimming pool = 35 m

Breadth of a swimming pool = 25 m

Height of a swimming pool = 2 m

Volume of a swimming pool = length × breadth × height

$$= 35 \text{ m} \times 25 \text{ m} \times 2 \text{ m}$$

$$= 1750 \text{ m}^3$$

Full of water in the swimming pool = $\frac{3}{4}$

Volume of water in pool

= Volume of a swimming pool × Capacity of water

$$= 1750 \times \frac{3}{4} = \frac{5250}{4}$$

$$= 1312.5 \text{ m}^3$$

6. Length of a biscuit packet = 18 cm

Breadth = 10 cm

Height = 8 cm

Volume of a biscuit packet = length × breadth × height

$$= 18 \text{ cm} \times 10 \text{ cm} \times 8 \text{ cm}$$

$$= 1440 \text{ cm}^3$$

Number of biscuits = 36

The volume of each biscuit = $\frac{1440}{36} = 40 \text{ cm}^3$

7. Length of brick = 24 cm = 0.24 m

Breadth of brick = 10 cm = 0.10 m

Height (thickness) of brick = 8 cm = 0.08 m

$$\begin{aligned}\text{Volume of brick} &= \text{length} \times \text{breadth} \times \text{height} \\ &= 0.24 \text{ m} \times 0.10 \text{ m} \times 0.08 \text{ m} \\ &= 0.00192 \text{ m}^3\end{aligned}$$

Length of wall = 12 m

Thickness of wall = 8 cm = 0.08 m

Height of wall = 2.4 m

$$\begin{aligned}\text{Volume of wall} &= \text{length} \times \text{breadth} \times \text{height} \\ &= 12 \text{ m} \times 0.08 \text{ m} \times 2.4 \text{ m} = 2.304 \text{ m}^3\end{aligned}$$

$$\text{Number of bricks} = \frac{2.304}{0.00192} = 1200 \text{ bricks}$$

8. Length of tablets = 4 cm

Breadth of tablets = 3 cm

Thickness (height) of tablets = 0.5 cm

$$\begin{aligned}\text{Volume of tablets} &= \text{length} \times \text{breadth} \times \text{height} \\ &= 4 \text{ cm} \times 3 \text{ cm} \times 0.5 \text{ cm} = 6 \text{ cm}^3\end{aligned}$$

$$\text{Volume of the brick} = 10 \times 6 = 60 \text{ cm}^3$$

9. A carton of ice cream has length = 18 cm

Breadth = 10 cm

Height = 2.5 cm

$$\begin{aligned}\text{Volume of a carton of ice cream} &= \text{length} \times \text{breadth} \times \text{height} \\ &= 18 \text{ cm} \times 10 \text{ cm} \times 2.5 \text{ cm} \\ &= 450 \text{ cm}^3\end{aligned}$$

$$\therefore 1 \text{ cu. cm} = 1 \text{ mL}$$

$$\therefore 450 \text{ cm}^3 = 450 \text{ mL}$$



Do yourself.

Apply Your Learning

Critical and Logical thinking, Observation

Side of a square garden = 98 m

$$\begin{aligned}\text{Perimeter of a square} &= 4 \times \text{side} \\ &= 4 \times 98 \text{ m} \\ &= 392 \text{ m}\end{aligned}$$

$$\begin{aligned}\text{Total distance cover in 8 rounds} &= 8 \times 392 \text{ m} \\ &= 3136 \text{ m}\end{aligned}$$

Think, Solve and Learn

Problem-solving, Curiosity

The shape of cubes of side length = 4 cm each

$$\begin{aligned}\text{Volume of a cube} &= \text{side} \times \text{side} \times \text{side} \\ &= 4 \text{ cm} \times 4 \text{ cm} \times 4 \text{ cm} = 64 \text{ cm}^3\end{aligned}$$

The chocolates in a box of length = 24 cm

Breadth = 16 cm

Height = 8 cm

$$\begin{aligned}\text{Volume of a chocolates box} &= \text{length} \times \text{breadth} \times \text{height} \\ &= 24 \text{ cm} \times 16 \text{ cm} \times 8 \text{ cm} = 3072 \text{ cm}^3\end{aligned}$$

$$\text{Number of chocolates} = \frac{3072}{64} = 48$$








Data Handling

**Exercise 15**

1. The number of students who were absent from class in the month of July is shown in this chart. Make a table showing the number of times a particular number of students was absent.

2	5	1	2	3	1	5
3	4	3	1	4	2	3
3	5	1	2	4	2	1

Number of Absent Students	Tally Marks	Number of Days
1		5
2		5
3		5
4		3
5		3

2. The number of sums (out of 20) done correctly by Aslam in different maths tests is shown in the chart. Arrange the numbers in ascending order. Then make a table showing the number of times he got a particular score (each sum carried 1 mark).

Aslam's Scores	18, 17, 20, 18, 15, 17, 19, 18, 17, 18, 19, 18, 17, 18, 16
----------------	------------------------------------------------------------

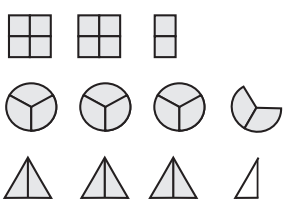



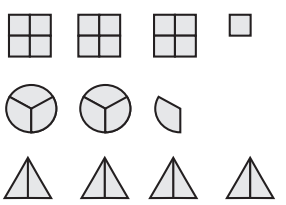
Ascending order : 15, 16, 17, 17, 17, 17, 18, 18, 18, 18, 18, 18, 19, 19, 20

Score	Number of Times
15	1
16	1
17	4
18	7
19	2
20	1
Total	16

From the chart :


- (a) What score did he get most often? = **18**
 (b) What score did he get least often? = **15, 16, 20**
 (c) Do you think he is good in maths? = **Yes**





















3. The pictograph shows the points scored by Adarsh School and St. Peter's School in three rounds of a quiz.

School Name	Points	
Adarsh School		<p>First round</p> <p> = 20 points</p> <p>Second round</p> <p> = 15 points</p> <p>Third round</p> <p> = 10 points</p>
St. Peter's School		

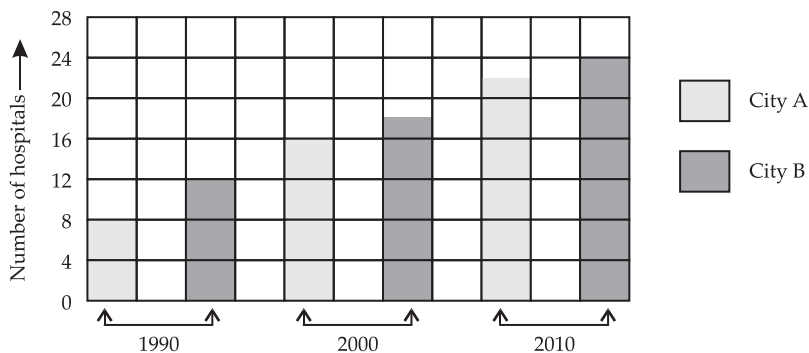
From the chart :

- (a) How much more did St. Peter's School score than Adarsh School in the first round? $\Rightarrow 65 - 50 = 15$
- (b) How much more did Adarsh School score than St. Peter's School in the second round? $\Rightarrow 55 - 35 = 20$
- (c) Which school scored higher in the third round? \Rightarrow **St. Peter's School**
- (d) What was the total score of Adarsh School in the three rounds? $\Rightarrow 50 + 55 + 35 = 140$

4. Fill this pictograph to show the co-curricular (fun) activities of the children of a class (all sections) chosen. Use  to show 8 children.

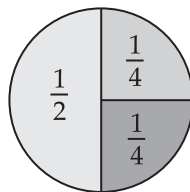
Activity	Children	Number
Singing	    	40
Music	   	32
Drawing	   	28
Acting	      	56

5. The bar graph shows the number of hospitals in two cities in the years 1990, 2000 and 2010. The scale of the graph is 1 cm = 4 hospitals. That means the side of one square stands for 4 hospitals.



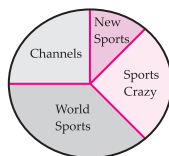
- (a) In 1990, the number of hospitals in City A was 4 and in City B was 12 .
- (b) From 1990 to 2000 the number of hospitals in City B increased by $18 - 12 = 6$.
- (c) From 1990 to 2010 the number of hospitals in City A increased by $22 - 8 = 14$.
- (d) In which city was the increase in the number of hospitals greater between 1990 and 2010 ? **City A**
6. Do yourself.

7. Akshita asked 40 friends whether their mothers work. Twenty of them said their mothers did not work, 10 said their mothers had part-time jobs (for a short part of the day) and 10 said their mothers worked full time (regular office hours). Fill the pie chart to show this data. Also answer the following:



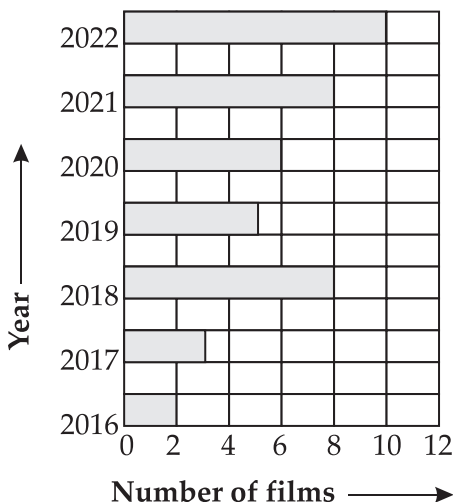
- (a) Fraction of mothers who do not work = $\frac{1}{2}$
- (b) Fraction of mothers who have part-time jobs = $\frac{1}{4}$
- (c) Fraction of mothers who work full time = $\frac{1}{4}$

8. This pie chart shows the popularity of four sports channels. The data was collected by interviewing 200 people. Divide the chart into 8 equal parts (as in the previous question and answer the following:)



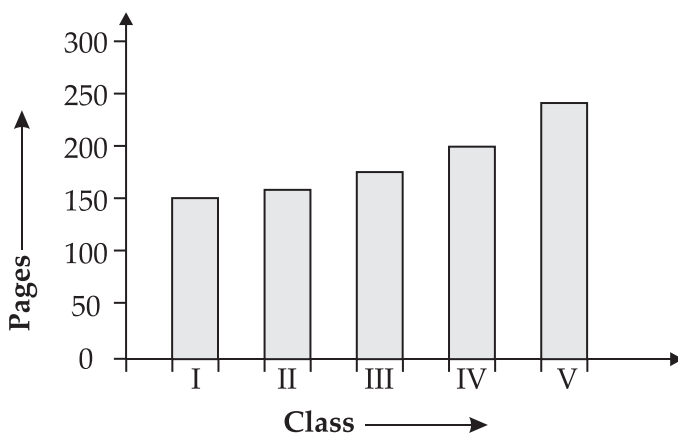
- (a) What fraction likes New Sports? $= \frac{1}{8}$
- (b) How many people like World Sports? $= \frac{3}{8}$
- (c) What percentage likes Sports Crazy? $= 25\%$
- (d) What fraction likes Channels? $= 25\%$
9. The table shows the growth in an actor's career from 2000 to 2006. Make a bar graph by colouring 1 square for 2 films.

Year	2016	2017	2018	2019	2020	2021	2022
Number	2	3	8	5	6	8	10



10. Shrikant made this table to show how the number of pages of his maths books had increased from Class I to Class V. Draw bar graph to show his data.

Class	I	II	III	IV	V
Pages	150	160	180	200	240



Maths in Everyday Life

Observation, Interpersonal Skills

Do yourself.

Apply Your Learning

Critical and Logical thinking, Observation

Do yourself.

Think, Solve and Learn

Problem-solving, Applicative thinking

Do yourself.



Maths in Real Life



Exercise 16

- Subhash bought 4 notebook at ₹ 14 per notebook, 5 pens at ₹ 10 per pen, 4 pencils at ₹ 2 per pencil and 2 eraser at ₹ 2 per eraser. Fill up the bill.

S.No.	Item	Quantity	Rate	Amount
1.	Notebook	4	₹ 14	₹ 56

2.	Pen	5	₹ 10	₹ 50
3.	Pencil	4	₹ 2	₹ 8
4.	Eraser	2	₹ 2	₹ 4
			Total	₹ 118

2. Arya bought 5 packets of sugar for ₹ 45 per packet, 3 packet of salt for ₹ 12 each, a bottle of sauce for ₹ 120 and 5 packets for biscuits ₹ 10 each, fill up the bill.

S.No.	Item	Quantity	Rate	Amount
1.	Sugar	5	₹ 45	₹ 225
2.	Salt	3	₹ 12	₹ 36
3.	Sauce	1	₹ 120	₹ 120
4.	Biscuits	5	₹ 10	₹ 50
			Total	₹ 431

3. A train covers 168 kilometers in 4 hours. Find its speed.

Distance = 168 km, Time = 4 hours, speed = ?

$$\begin{aligned}\text{Speed} &= \frac{\text{Distance}}{\text{Time}} \\ &= \frac{168 \text{ km}}{4 \text{ h}} = 42 \text{ km/h}\end{aligned}$$

4. Mr. Shekh bought 4 kg of flour at ₹ 20 per kg, 3 kg of dal at ₹ 45 per kg, 250 g of tea at ₹ 80 per kg and 500 g of sugar at ₹ 40 per kg. Fill up the bill for the things he bought.

S.No.	Item	Quantity	Rate	Amount
1.	Flour	4 kg	₹ 20	₹ 80
2.	Dal	3 kg	₹ 45	₹ 135
3.	Tea	0.25 kg	₹ 80	₹ 20
4.	Sugar	0.5 kg	₹ 40	₹ 20
			Total	₹ 255

5. Distance = 378 km, Time = 6 hours, Speed = ?

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$= \frac{378 \text{ km}}{6 \text{ h}} = 63 \text{ km/h}$$

6. Distance = ?, Time = 5 hours, Speed = 35 km/h

$$\begin{aligned}\text{Distance} &= \text{Speed} \times \text{Time} \\ &= 35 \times 5 = 175 \text{ km}\end{aligned}$$

7. Speed of scooter = 45 km/h

$$\text{Time} = 30 \text{ minutes}$$

$$\therefore 1 \text{ hour} = 60 \text{ minutes}$$

$$\begin{aligned}\text{Distance} &= \text{Speed} \times \text{Time} \\ &= 45 \times 30 \times \frac{1}{60} \\ &= \frac{1350}{60} = 22.5 \text{ km}\end{aligned}$$

8. Speed of an aeroplane = 75 km/h

$$\text{Time} = ?$$

$$\text{Distance} = 525 \text{ km}$$

$$\begin{aligned}\text{Time} &= \frac{\text{Distance}}{\text{Speed}} \\ &= \frac{525}{75} = 7 \text{ hour}\end{aligned}$$

9. Two ships start from the same point at 8 a.m. one travels at 30 km/h and the other at 45 km/h.

The second ship reaches the next stop at 10 a.m.

$$\text{Distance of second ship} = \text{Speed} \times \text{Time} \quad (\because \text{Time} = 2 \text{ hours})$$

$$= 45 \times 2$$

$$= 90 \text{ km}$$

$$\begin{aligned}\text{Time of first ship} &= \frac{\text{Distance}}{\text{Speed}} \\ &= \frac{90}{30} = 3 \text{ hours}\end{aligned}$$

$$\therefore \text{The first ship arrive later} = 3 - 2 = 1 \text{ hour}$$