

UNIT 1: SHAPES

1. Which one of the following is a parallelogram?

Answer: A. Parallelogram

2. In kite ABCD, there are:

Answer: A. 2 pairs of equal sides.

A kite has two pairs of adjacent sides of equal length.

3. Which one is a regular figure?

Answer: B. Hexagon

A regular figure has all sides and all angles equal.

4. All my sides and all my angles are equal. I am an:

Answer: B. Equilateral triangle

5. A trapezium is a special:

Answer: C. Quadrilateral

A trapezium is a four-sided 2D shape, so it is a quadrilateral.

6. This shape is a:

Answer: B. Cuboid

7. The cylinder has:

Answer: D. One curved face and two flat faces.

8. The triangular-based pyramid has:

Answer: A. 4 faces

A triangular-based pyramid has three triangular side faces and one triangular base.

9. A square-based pyramid has:

Answer: B. 5 faces

It has one square base and four triangular faces that meet at a point.

10. This shape is a:

Answer: A. Cube

11. Two of my faces are triangular and the three others are rectangular. I am a:

Answer: C. Prism

This description identifies a triangular prism.

12. How many sides does a pentagon have?

Answer: 5 sides

UNIT 2: NUMERATION AND NOTATION

1. Write in figures [1, 2]

- a) Two hundred and sixteen: 216
- b) Sixty thousand seven hundred and forty-five: 60 745
- c) Four thousand five hundred and eighty: 4 580
- d) Ninety-two thousand and four: 92 004
- e) Seven thousand and twenty-one: 7 021

2. Abacus Numbers [1, 2]

Abacus A: By counting the beads on each rod from left to right, the number is 231 048.

Abacus B: By counting the beads on each rod from left to right, the number is 526 002.

3. Value of Digits [2, 3]

- a) 3 in 5 632: 30 (3 tens)
- b) 9 in 90 638: 90 000 (9 ten thousands)
- c) 4 in 26 094: 4 (4 units)
- d) 5 in 85 197: 5 000 (5 thousands)
- e) 1 in 147 635: 100 000 (1 hundred thousand)

4. Expanded Form to Number

a) $400 + 7 + 8\,000 + 30 + 60\,000 = 68\,437$

b) $(2 \times 10\,000) + (3 \times 100) + (6 \times 1) + (2 \times 1\,000) + (6 \times 10)$
 $= 20\,000 + 300 + 6 + 2\,000 + 60$
 $= 22\,366$

5. Ordering Numbers [4, 5]

Ascending order (smallest to largest):

a) 4 927, 8 337, 3 589, 9 537, 5 498
→ 3 589, 4 927, 5 498, 8 337, 9 537

b) 70 102, 70 085, 70 428, 70 258
→ 70 085, 70 102, 70 258, 70 428

6. Write in Words

a) 3 149: Three thousand one hundred and forty-nine

b) 57 063: Fifty-seven thousand and sixty-three

c) 215 094: Two hundred and fifteen thousand and ninety-four

d) 6 785: Six thousand seven hundred and eighty-five

7. Largest 4-digit Number

9 999

8. Write in Expanded Form

a) 3 921

$$= 3\,000 + 900 + 20 + 1$$

b) 84 057

$$= 80\,000 + 4\,000 + 50 + 7$$

c) 755

$$= 700 + 50 + 5$$

9. Arrange in Descending Order (Largest to Smallest)

a) 16 748, 8 719, 43 275, 9 867, 34 893

→ 43 275, 34 893, 16 748, 9 867, 8 719

b) 132 703, 90 876, 500 471, 206 004, 39 428

→ 500 471, 206 004, 132 703, 90 876, 39 428

10. Complete

a) 13 652

$$= 1 \text{ ten thousand} + 3 \text{ thousands} + 6 \text{ hundreds} + 5 \text{ tens} + 2 \text{ units}$$

b) 926 438

$$= 8 \text{ units} + 4 \text{ hundreds} + 2 \text{ ten thousands} + 9 \text{ hundred thousands} + 6 \text{ thousands} + 3 \text{ tens}$$

11a) 96,421

11b) 12,469

12) 47,868, 47,869, 47,870, 47,871

13) 99,999

14) 6

15) 13,478

16) 58,300

17) That number is:

$$240,000 + 413 = 240,413$$

On the abacus:

2 hundred-thousands, 4 ten-thousands, 0 thousands,
4 hundreds, 1 ten, 3 ones

18) 30,001 and 30,002

19) 1,099

20) 1

UNIT 3: ADDITION AND SUBTRACTION

1.

a) $418 + 290 = 708$

b) $2\,881 + 572 = 3\,453$

c) $4\,275 + 1\,364 = 5\,639$

d) $96\,402 + 85\,371 = 181\,773$

2. Sum of 49, 218 and 75 063:

$$49 + 218 + 75\,063 = 75\,330$$

3.

a) $715 + 1\,592 = 2\,307$

b) $7\,926 - 6\,343 = 1\,583$

4. $16\,000 - 4\,987 = 11\,013$

5.

a) $5654 + 1253 = 6907$

b) $14397 - 2585 = 11812$

6. $7\,803 + 957$. The number is 8 760.

7. Comparing 17 248 and 9 053:

$$17\,248 - 9\,053 = 8\,195.$$

8. Total pupils in school:

$$436 \text{ boys} + 649 \text{ girls} = 1\,085 \text{ pupils.}$$

9. $532\,400 - 4\,725 = 527\,675$.

10. Consecutive odd numbers summing to 188:

The numbers are 93 and 95.

11. John's money:

$$\text{Paul has Rs } 2\,850. \text{ John has Rs } 2\,850 - \text{Rs } 965 = \text{Rs } 1\,885.$$

12. Adults in cinema:

$$645 \text{ total spectators} - 270 \text{ children} = 375 \text{ adults}$$

13. Fruit seller's apples:

i) Tuesday: $1\,637 + 275 = 1\,912$ apples.

ii) Both days: $1\,637 + 1\,912 = 3\,549$ apples.

14. Smaller number:

$$50\,498 - 3\,957 = 46\,541.$$

15. Original price of radio:

$$\text{Rs } 740 + \text{Rs } 135 \text{ discount} = \text{Rs } 875.$$

16. Loaves sold over 3 months:

a) Total (Jan + Feb + March): $145\,203 + 99\,850 + 204\,518 = 449\,571$ loaves.

b) January more than February: $145\,203 - 99\,850 = 45\,353$ loaves.

c) Jan/Feb combined vs March: $(145\,203 + 99\,850) - 204\,518 = 40\,535$ loaves.

17.

The bottom row is already filled:

So every row, column, and diagonal must add to 42.

Answer:

17 15 10

7 14 21

18 13 11

18. Balloons in a box: [5], [6]

i) Blue: $318 \text{ red} + 29 = 347$ blue balloons.

ii) Yellow: $347 \text{ blue} - 63 = 284$ yellow balloons.

iii) Total: $318 + 347 + 284 = 949$ balloons.

19. Water needed for tank:

$$2\,775 \text{ L capacity} - 890 \text{ L current} = 1\,885 \text{ L needed.}$$

20. Correct (✓) or Incorrect (X):

a) $532 - 451 = 81$ (✓)

b) $96 + 218 = 316 - 2$ ($314 = 314$) (✓)

c) $1\,055 - 65 = 100$ (False, it is 990) (X)

d) $819 + 745 = 1\,560 + 5$ ($1\,564 \neq 1\,565$) (X)

UNIT 4 – MULTIPLICATION AND DIVISION

1a. 714×2

$$\begin{array}{r} 714 \\ \times 2 \\ \hline 1428 \end{array}$$

Answer: 1428

1b. 8001×6

$$\begin{array}{r} 8001 \\ \times 6 \\ \hline 48006 \end{array}$$

Answer: 48006

1c. 27160×5

$$\begin{array}{r} 27160 \\ \times 5 \\ \hline 135800 \end{array}$$

Answer: 135800

2a. $930 \div 3$

$$930 \div 3 = 310$$

Answer: 310

2b. $4214 \div 7$

$$4214 \div 7 = 602$$

Answer: 602

2c. $9280 \div 8$

$$9280 \div 8 = 1160$$

Answer: 1160

2d. $196 \div 4$

$$196 \div 4 = 49$$

Answer: 49

3. 237×9

$$\begin{array}{r} 237 \\ \times 9 \\ \hline 2133 \end{array}$$

Answer: 2133

7a. 52×32

$$\begin{array}{r} 52 \\ \times 32 \\ \hline 104 \\ + 1560 \\ \hline 1664 \end{array}$$

Answer: 1664

7b. 614×45

$$\begin{array}{r} 614 \\ \times 45 \\ \hline 3070 \\ + 24560 \\ \hline 27630 \end{array}$$

Answer: 27630

7c. 8013×17

$$\begin{array}{r} 8013 \\ \times 17 \\ \hline 56091 \\ + 80130 \\ \hline 136221 \end{array}$$

Answer: 136221

11d. $4500 \div 18$

$$4500 \div 18 = 250$$

Answer: 250

13b. $3621 \div 17$

$$3621 \div 17 = 213$$

Answer: 213

13c. $2337 \div 57$

Answer: 41

4a. $8 \times 5 \times 6$

Answer: 240

4b. $13 \times 40 \times 2$

Answer: 1040

4c. $9 \times 3 \times 0$

Answer: 0

4d. $7 \times 21 \times 4$

Answer: 588

5. Multiples of 12

Answer: 12, 24, 36, 48

6. $88 \div 11$

Answer: 8

8a. 821×10

Answer: 8210

8b. 46×100

Answer: 4600

8c. 72×1000

Answer: 72000

9a. 415×200

Answer: 83000

9b. 93×3000

Answer: 279000

9c. 706×50

Answer: 35300

10a. 863×500

Answer: 431500

10b. 400×10

Answer: 4000

10c. 95×7000

Answer: 665000

10d. 600×67

Answer: 40200

10e. 115×800

Answer: 92000

11a. $9800 \div 100$

Answer: 98

11b. $6320 \div 10$

Answer: 632

11c. $74000 \div 1000$

Answer: 74

12a. $1950 \div 50$

Answer: 39

12b. $81000 \div 300$

Answer: 270

12c. $318000 \div 2000$

Answer: 159

13a. $800 \div 25$

Answer: 32

14. $48 \text{ pencils} \times 15 \text{ boxes}$

Answer: 720 pencils

15. $945 \text{ ml} \div 9 \text{ cans}$

Answer: 105 ml

UNIT 5: TYPES OF NUMBERS

1. Ring the even numbers

Even numbers (ending in 0, 2, 4, 6, 8):

32, 68, 104, 508, 2704, 8750

2. Tick the odd numbers

Odd numbers (ending in 1, 3, 5, 7, 9):

3, 31, 89, 113, 225, 887, 5449

3. Sum of all even numbers

a) Between 100 and 109

$$102 + 104 + 106 + 108 = 420$$

b) From 430 to 438

$$430 + 432 + 434 + 436 + 438 = 2170$$

4. Sum of all odd numbers

a) From 119 to 131

$$119 + 121 + 123 + 125 + 127 + 129 + 131 = 875$$

b) Between 876 and 902

$$877 + 879 + 881 + 883 + 885 + 887 + 889 + 891 + 893 + 895 + 897 + 899 + 901 = 11,557$$

5. Sum Property (Odd + Odd)

$$\text{Odd} + \text{Odd} = \text{Even}$$

6. Sum Property (Even + Odd)

$$\text{Even} + \text{Odd} = \text{Odd}$$

7. Product Property (Even $\times$ Odd)

$$\text{Even} \times \text{Odd} = \text{Even}$$

8. Consecutive odd numbers

$$\text{Sum} = 2840$$

Numbers:

1419 and 1421

9. Consecutive even numbers

$$\text{Sum} = 636$$

Numbers:

210, 212, 214

10. Square numbers

From (72, 81, 34, 116, 49, 56):

$$81 = 9^2$$

$$49 = 7^2$$

11. Prime number

From (76, 97, 69, 84):

97

12. Composite number

From (84, 29, 71, 53):

84

13. Complete the sequences

a) 1, 4, 9 → 16, 25, 36

b) 5, 7, 11 → 13, 17, 19, 23

c) 49, 64, 81 → 100, 121, 144

d) 6886, 6888 → 6890, 6892, 6894, 6896

14. Sum of prime numbers (70–80)

$$71 + 73 + 79 = 223$$

15. Consecutive prime numbers (43 in the middle)

37, 41, 43, 47, 53

16. Sum of composite even numbers (20–30)

$$20 + 22 + 24 + 26 + 28 + 30 = 150$$

17. Prime numbers and product

a) Primes between 40 and 45: 41, 43

b) Product:

$$41 \times 43 = 1763$$

18. Smallest composite number division

Smallest composite number = 4

$$2248 \div 4 = 562$$

19. Greatest 2-digit prime multiplication

Greatest 2-digit prime = 97

$$97 \times 4 = 388$$

20. Find the unknown factor

Product = 2.16

Known factor = 0.3

$$2.16 \div 0.3 = 7.2$$

Unit 6: Factors and Multiples

1. Find all the factors of

a) 8

1, 2, 4, 8

(These all divide into 8 evenly.)

b) 18

1, 2, 3, 6, 9, 18

c) 24

1, 2, 3, 4, 6, 8, 12, 24

d) 36

1, 2, 3, 4, 6, 9, 12, 18, 36

e) 48

1, 2, 3, 4, 6, 8, 12, 16, 24, 48

2. Tick True or False

a) 8 is a factor of 68 → False

b) 7 is a factor of 119 → True

c) 12 is a factor of 96 → True

d) 13 is a factor of 91 → True

3. How many factors does each number have?

a) 36

Factors: 1, 2, 3, 4, 6, 9, 12, 18, 36

👉 9 factors

b) 27

Factors: 1, 3, 9, 27

👉 4 factors

4. Circle numbers which are NOT factors of 480

Test each number by division:

5 ✓

8 ✓

9 ✗ ($480 \div 9$ not whole)

12 ✓

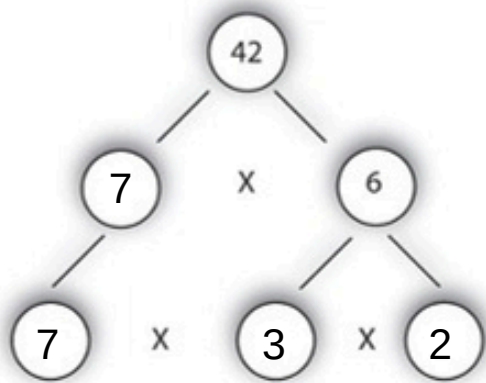
14 ✗

21 ✗

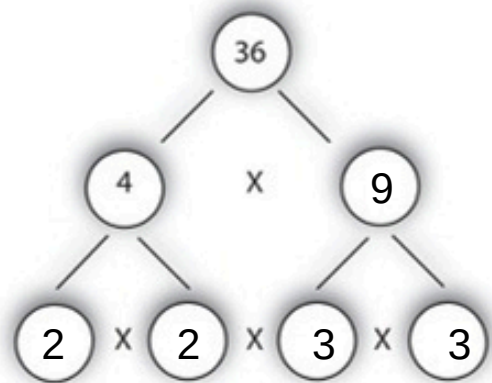
👉 Numbers to circle: 9, 14, 21

5

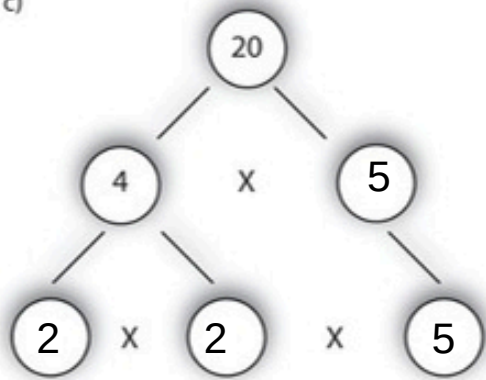
a)



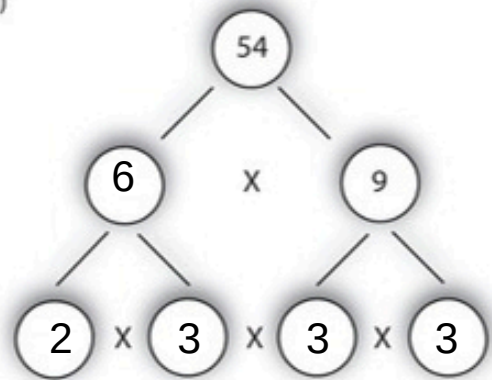
b)



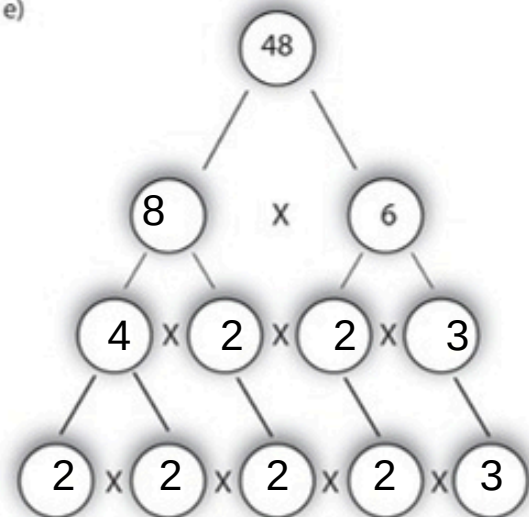
c)



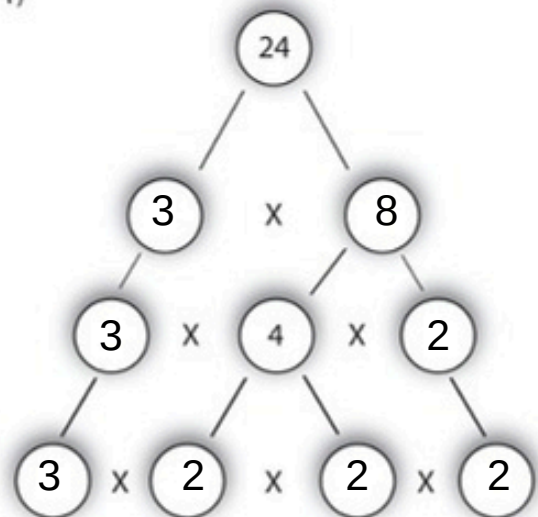
d)



e)



f)



6. Common Factors and Highest Common Factor (HCF)

a) 18 and 42

Factors of 18: 1, 2, 3, 6, 9, 18

Factors of 42: 1, 2, 3, 6, 7, 14, 21, 42

Common factors: 1, 2, 3, 6

👉 HCF = 6

b) 36 and 48

Common factors: 1, 2, 3, 4, 6, 12

👉 HCF = 12

7. Find the HCF

a) 8 and 12 → 4

b) 28 and 42 → 14

c) 51 and 85 → 17

d) 27 and 108 → 27

8(a) LCM of 15 and 20

✅ LCM = 60

8(b) LCM of 24 and 36

Multiples of 24:

24, 48, 72, 96, ...

Multiples of 36:

36, 72, 108, ...

✅ LCM = 72

8(c) LCM of 48 and 72

Multiples of 48:

48, 96, 144, 192, ...

Multiples of 72:

72, 144, 216, ...

✅ LCM = 144

8(d) LCM of 18 and 54

Multiples of 18:

18, 36, 54, 72, ...

Multiples of 54:

54, 108, ...

✅ LCM = 54

9. Find the smallest number which is exactly divisible by 21 and 35.

Answer: 105

10. Smallest number leaving remainder 13 when divided by 15 and 24

Step 1:

LCM of 15 and 24 = 120

Step 2:

Add remainder:

$120 + 13 = 133$

👉 Answer: 133

11. Common multiples of 9 and 12

From the list: (54, 108, 129, 72, 27, 108)

Multiples of both:

✓ 72

✓ 108

👉 72 and 108

12. Stopwatch problem (6 min & 8 min intervals)

LCM of 6 and 8 = 24 minutes

They meet every 24 minutes.

Start time = 8:10 a.m.

a) Second time

$8:10 + 24 = 8:34$ a.m.

b) Fourth time

$8:10 + 72 \text{ minutes} = 9:22$ a.m.

13. Missing number (using HCF & LCM formula)

Formula:

First number $\times$ Second number = HCF $\times$ LCM

Given:

First = 24

HCF = 8

LCM = 48

So:

$24 \times \text{Second} = 8 \times 48$

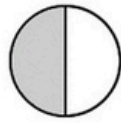
$24 \times \text{Second} = 384$

$\text{Second} = 384 \div 24 = 16$

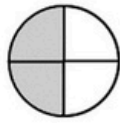
$$\text{Or } \frac{8 \times 48}{24} = 16$$

Unit 7. Fractions.

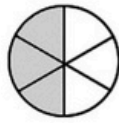
1. Complete the following to show the shaded parts.



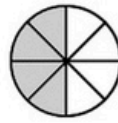
$\frac{1}{2}$



$\frac{2}{4}$



$\frac{3}{6}$



$\frac{4}{8}$

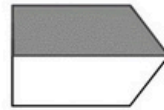
2. a) What fraction of each figure is shaded ?



$\frac{4}{6}$

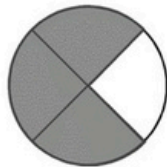


$\frac{2}{3}$

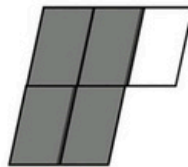


$\frac{1}{2}$

b) What fraction of each figure is unshaded ?



$\frac{1}{4}$



$\frac{1}{5}$



$\frac{1}{6}$

4. Writing Fractions in Words

$\frac{3}{5}$ = three-fifths

$\frac{7}{8}$ = seven-eighths

5.

a) $\frac{20}{6}$

$20 \div 6 = 3$ remainder 2

= $3 \frac{2}{6}$

= $3 \frac{1}{3}$

✓ $3 \frac{1}{3}$

b) $\frac{6}{5}$

$6 \div 5 = 1$ remainder 1

✓ $1 \frac{1}{5}$

c) $\frac{17}{3}$

$17 \div 3 = 5$ remainder 2

✓ $5 \frac{2}{3}$

6. Improper Fractions

a) $\frac{3}{1}$

b) $2\frac{3}{4}$

$$2 \times 4 = 8$$

$$8 + 3 = 11$$

$$= \frac{11}{4}$$

c) $4\frac{2}{3}$

$$4 \times 3 = 12$$

$$12 + 2 = 14$$

$$= \frac{14}{3}$$

7. Equivalent Fractions

(Multiply top and bottom by same number)

$$\frac{2}{5} \rightarrow \frac{8}{20} (\times 4)$$

$$\frac{8}{10} \rightarrow \frac{32}{40} (\times 4)$$

$$\frac{3}{7} \rightarrow \frac{12}{28} (\times 4)$$

$$\frac{1}{3} \rightarrow \frac{3}{9} (\times 3)$$

$$\frac{1}{4} \rightarrow \frac{2}{8} (\times 2)$$

$$\frac{7}{12} \rightarrow \frac{35}{60} (\times 5)$$

8. Lowest Terms

a) $\frac{4}{10}$

Divide by 2:

$$4 \div 2 = 2$$

$$10 \div 2 = 5$$

$$= \frac{2}{5}$$

b) $\frac{30}{40}$

Divide by 10:

$$= \frac{3}{4}$$

c) $\frac{45}{60}$

Divide by 15:

$$= \frac{3}{4}$$

9. Ordering Fractions

Ascending

a) $\frac{3}{11} < \frac{7}{11} < \frac{10}{11}$

b) $\frac{3}{10} < \frac{1}{2} < \frac{4}{5}$

10. Descending

a) $\frac{5}{7} > \frac{5}{9} > \frac{5}{18} > \frac{5}{21}$

b) $\frac{7}{8} > \frac{3}{4} > \frac{1}{2} > \frac{5}{12}$

11.

Addition

a) $\frac{3}{5}$

b) $\frac{1}{4} + \frac{2}{5}$
 $= \frac{5}{20} + \frac{8}{20}$
 $= \frac{13}{20}$

c) $\frac{2}{15} + \frac{2}{5}$
 $= \frac{2}{15} + \frac{6}{15}$
 $= \frac{8}{15}$

d) $3 \frac{1}{4} + 2 \frac{1}{5}$
 $= 5 + (\frac{5}{20} + \frac{4}{20})$
 $= 5 \frac{9}{20}$

12. Subtraction

a) $\frac{7}{12}$

b) $\frac{5}{6} - \frac{1}{4}$
 $= \frac{10}{12} - \frac{3}{12}$
 $= \frac{7}{12}$

c)
 $1 \frac{4}{5} - \frac{3}{5}$

$1 \frac{4}{5} = \frac{9}{5}$
Now subtract:
 $\frac{9}{5} - \frac{3}{5} = \frac{6}{5}$
Convert back:
 $\frac{6}{5} = 1 \frac{1}{5}$

d) $2 \frac{1}{7} - \frac{4}{7}$
 $= 1 + \frac{8}{7} - \frac{4}{7}$
 $= 1 \frac{4}{7}$

13. Multiply

👉 Remember:

To multiply fractions:

Multiply the top numbers (numerators).

Multiply the bottom numbers (denominators).

Simplify if possible.

a) $\frac{7}{8} \times \frac{1}{2}$

Multiply tops: $7 \times 1 = 7$

Multiply bottoms: $8 \times 2 = 16$

Answer: $\frac{7}{16}$

b) $\frac{3}{8} \times 16$

Answer: 6

c) $\frac{5}{6} \times \frac{2}{3}$

Answer: $\frac{5}{9}$

d) $35 \times 1 \frac{2}{7}$

Answer: 45

14. Divide

👉 Remember:

To divide by a fraction:

Keep the first number the same.

Flip the second fraction (find its reciprocal).

Multiply.

a) $3 \div \frac{1}{3}$

Flip $\frac{1}{3} \rightarrow \frac{3}{1}$

$$3 \times 3 = 9$$

Answer: 9

b) $6 \frac{6}{12} \div \frac{1}{12}$

Step 1: Simplify $6 \frac{6}{12}$

$$\frac{6}{12} = \frac{1}{2}$$

So this becomes $6 \frac{1}{2}$

Step 2: Change to improper fraction

$$6 \frac{1}{2} = \frac{13}{2}$$

Step 3: Flip $\frac{1}{12} \rightarrow \frac{12}{1}$

$$\frac{13}{2} \times \frac{12}{1}$$

$$12 \div 2 = 6$$

$$13 \times 6 = 78$$

Answer: 78

c) $5 \frac{1}{3} \div 1 \frac{1}{11}$

Step 1: Change to improper fractions

$$5 \frac{1}{3} = \frac{16}{3}$$

$$1 \frac{1}{11} = \frac{12}{11}$$

Step 2: Flip the second fraction

$$\frac{12}{11} \rightarrow \frac{11}{12}$$

Step 3: Multiply

$$\frac{16}{3} \times \frac{11}{12}$$

Simplify:

$$16 \div 4 = 4$$

$$12 \div 4 = 3$$

Now multiply:

$$4 \times 11 = 44$$

$$3 \times 3 = 9$$

$$\frac{44}{9} = 4 \frac{8}{9}$$

Answer: $4 \frac{8}{9}$

d) $9 \frac{2}{5} \div 1 \frac{1}{3}$

Step 1: Change to improper fractions

$$9 \frac{2}{5} = \frac{47}{5}$$

$$1 \frac{1}{3} = \frac{4}{3}$$

Step 2: Flip $\frac{4}{3} \rightarrow \frac{3}{4}$

Step 3: Multiply

$$\frac{47}{5} \times \frac{3}{4}$$

$$47 \times 3 = 141$$

$$5 \times 4 = 20$$

$$\frac{141}{20} = 7 \frac{1}{20}$$

Answer: $7 \frac{1}{20}$

Problems Involving Fractions

1) Brownies Given Away

$$1/3 + 1/6$$

$$1/3 = 2/6$$

$$2/6 + 1/6 = 3/6$$

$$3/6 = 1/2$$

Answer: $1/2$ of the pan

2) Playground Space Left

$$1/4 = 2/8$$

$$2/8 + 3/8 = 5/8$$

$$\text{Whole playground} = 8/8$$

$$8/8 - 5/8 = 3/8$$

Answer: $3/8$

3) Cookies Given Away

$$10 \div 2 = 5$$

Answer: 5 cookies

4) Pumpkin Pie Shared

$$1/2 \times 2/3 = 2/6$$

$$2/6 = 1/3$$

Answer: $1/3$ of the pie

5) Cakes Made

$$6 \div 1/4 = 6 \times 4 = 24$$

Answer: 24 cakes

6. How many $1/2$ -cup servings in $5\frac{1}{4}$ cups?

Convert to improper fraction:

$$5\frac{1}{4} = 21/4$$

Now divide:

$$21/4 \div 1/2 = 21/4 \times 2/1 = 42/4 =$$

$$10\frac{1}{2}$$

✓ Answer: $10\frac{1}{2}$ servings

7. Area of rectangle: $4\frac{2}{3} \times 3\frac{3}{7}$ cm

Convert:

$$4\frac{2}{3} = 14/3$$

$$3\frac{3}{7} = 24/7$$

Multiply:

$$14/3 \times 24/7$$

$$= (14 \div 7) \times (24 \div 3)$$

$$= 2 \times 8 = 16$$

✓ Answer: 16 cm²

8. A fraction added to itself = $1\frac{5}{7}$

✓ Answer: 6/7

9. Two-thirds of a number is 16. Find one-quarter of the number

.

✓ Answer: 6

10. 12 girls, 8 boys — what fraction are boys?

✓ Answer: 2/5

Unit 8: Symmetry

3. Square: 4; Rectangle: 2; Equilateral triangle: 3; Isosceles triangle: 1; Kite: 1 4. (a) True, (b) False
5. Rhombus: 2 lines of symmetry

Unit 9: Decimals

1. (a) 6, 3; (b) 1, 0
2. (a) seven tenths; (b) forty-three and eight hundredths; (c) five and one hundred and fourteen thousandths; (d) six and seventy-nine hundredths; (e) ten and three thousandths
3. (a) 1.045, 1.26, 1.7, 1.82; (b) 0.95, 0.59, 0.5, 0.09
4. (a) 2.62, 2.67; (b) 16.6, 15.7
6. (a) 24.501; (b) 415.73
7. (a) 0.6; (b) 0.003; (c) 1; (d) 0.04
8. (a) $30 + 1 + 0.5 + 0.007$; (b) $800 + 70 + 6 + 0.04 + 0.001$
9. (a) (i) $\frac{1}{2}$; (ii) $\frac{12}{25}$; (iii) $\frac{5}{8}$
(b) (i) 0.75; (ii) 0.95; (iii) 0.41
10. (a) 5.6; (b) 14.26
11. (a) 18.389; (b) 0.328
12. 1.237
13. 8, 150, 300, 26.1, 1370, 9400
14. 2.9, 4.03, 0.372, 0.55, 0.008, 0.603
15. (a) 9.36; (b) 41.85; (c) 0.48; (d) 7.128; (e) 121.5
16. (a) 0.6; (b) 27.5; (c) 75; (d) 1.602

Unit 10: Length and Perimeter

1. Conversions (Use: 1 m = 100 cm, 1 cm = 10 mm)

- a) 900 cm
- b) 2000 mm
- c) 140 mm
- d) 6.5 m
- e) 2.4 m
- f) 7 cm
- g) 35 mm
- h) 525 cm

2. km to m (1 km = 1000 m)

- a) 6000 m
- b) 3200 m
- c) 450 m
- d) 1250 m

3. m to km (divide by 1000)

- a) 8 km
- b) 0.6 km
- c) 0.125 km

4. Mixed units

- a) 3.2 km
- b) 5 km 300 m
- c) 7 km 375 m

5. Add/Subtract lengths

- a) 44 km 348 m
- b) 28 km
- c) 13 km 611 m
- d) 36.5 km

6. Multiply lengths

- a) 30 km 750 m
- b) 27 km 135 m
- c) 15 km 375 m

7. Distance

Answer: 7.8 km

8. Track length

Answer: 2.1 km

9. Perimeter (add all sides)

Answers depend on diagram

10. Square perimeter ($4 \times \text{side}$)

32 cm

11. Shape with triangles

30 cm

12. Rectangle width

7 cm

13. Perimeter formula

Length = 105 m

Width = 35 m

14. Perimeter of shape

Depends on diagram

15. Isosceles triangle

19 cm

UNIT 11: CAPACITY

1. Convert

- a) $4 \text{ L} = 400 \text{ cL}$
- b) $\frac{1}{5} \text{ L} = 200 \text{ mL}$
- c) $2 \frac{1}{2} \text{ L} = 250 \text{ cL}$
- d) $3.6 \text{ L} = 3600 \text{ mL}$
- e) $745 \text{ cL} = 7 \text{ L } 45 \text{ cL}$

2. Convert to litres

- a) $670 \text{ cL} = 6.7 \text{ L}$
- b) $250 \text{ mL} = 0.25 \text{ L}$
- c) $55 \text{ cL} = 0.55 \text{ L}$
- d) $9050 \text{ mL} = 9.05 \text{ L}$

3. Add / subtract

- a) $27 \text{ L } 18 \text{ cL} + 46 \text{ L } 20 \text{ cL} = 73 \text{ L } 38 \text{ cL}$
- b) $31 \text{ L } 720 \text{ mL} + 9 \text{ L } 465 \text{ mL} = 41 \text{ L } 185 \text{ mL}$
- c) $99 \text{ L } 175 \text{ mL} - 18 \text{ L } 243 \text{ mL} = 80 \text{ L } 932 \text{ mL}$

4. Mixed calculations

- a) $3 \frac{1}{5} \text{ L} + 2 \text{ L } 35 \text{ cL} = 5 \text{ L } 55 \text{ cL}$
- b) $7 \frac{1}{2} \text{ L} - 4 \text{ L } 85 \text{ mL} = 3 \text{ L } 415 \text{ mL}$

5. Small units

- a) $12 \text{ cL} = 120 \text{ mL}$
- b) $8 \text{ mL} = 0.8 \text{ cL}$
- c) $410 \text{ mL} = 41 \text{ cL}$
- d) $0.3 \text{ cL} = 3 \text{ mL}$
- e) $5 \frac{7}{10} \text{ cL} = 57 \text{ mL}$

6. Multiply

- a) $19 \text{ L } 275 \text{ mL} \times 4 = 77 \text{ L } 100 \text{ mL}$
- b) $45 \text{ L } 18 \text{ cL} \times 8 = 361 \text{ L } 44 \text{ cL}$

7. Divide

- a) $145 \text{ L } 20 \text{ cL} \div 3 = 48 \text{ L } 40 \text{ cL}$
- b) $14 \text{ L } 525 \text{ mL} \div 7 = 2 \text{ L } 75 \text{ mL}$

8. Water left

$$4\frac{3}{4}\text{ L} - 2\text{ L } 30\text{ cL} = 2\text{ L } 45\text{ cL}$$

9. Total milk sold

$$12.4\text{ L} + 5\frac{1}{5}\text{ L} + 9\text{ L } 775\text{ mL} = 27\text{ L } 375\text{ mL}$$

10. Number of glasses

$$10\text{ L } 400\text{ mL} = 10400\text{ mL}; 20\text{ cL} = 200\text{ mL}$$

$$10400 \div 200 = 52\text{ glasses}$$

11. Number of pupils

$$\text{Five } 1.5\text{ L bottles} = 7.5\text{ L} = 750\text{ cL}$$

$$750\text{ cL} - 50\text{ cL} = 700\text{ cL}$$

$$630\text{ cL} \div 30\text{ cL} = 21\text{ pupils}$$

12. Water in both vessels

$$\text{Pail} = 8\text{ L } 65\text{ cL}; \text{Bucket} = 17\text{ L } 30\text{ cL}$$

$$\text{Total} = 25\text{ L } 95\text{ cL}$$

13. Cough syrup each time

$$12\text{ cL } 6\text{ mL} = 126\text{ mL}; 3\text{ times a day for } 7\text{ days} = 21\text{ times}$$

$$126 \div 21 = 6\text{ mL each time}$$

14. Water needed to fill tank

Tank is $\frac{1}{4}$ full, so $\frac{3}{4}$ empty

$$\frac{3}{4}\text{ of } 280\text{ L} = 210\text{ L}$$

15. Juice for each child

$$2\text{ L } 300\text{ mL} = 2300\text{ mL}; \frac{1}{5} = 460\text{ mL}; 40\text{ cL} = 400\text{ mL}$$

$$2300 - 460 - 400 = 1440\text{ mL}; 1440 \div 3 = 480\text{ mL each}$$

16. Oil left

$$\text{Monday } 5\text{ cL} = 50\text{ mL}; \text{Tuesday} = 60\text{ mL}; \text{Wednesday} = 80\text{ mL}$$

$$\text{Used} = 190\text{ mL}; 240 - 190 = 50\text{ mL left}$$

Unit 12: Mass

1. Convert into grams (1 kg = 1000 g)

- a) 6000 g
- b) 750 g
- c) 2250 g
- d) 7300 g

2. Convert into kilograms

- a) 80 g = 0.08 kg
- b) 375 g = 0.375 kg
- c) 4600 g = 4.6 kg

3. Mixed units

- a) 8 kg 300 g
- b) 5 kg 700 g
- c) 2 kg 125 g
- d) 4 kg 50 g
- e) 9 kg 250 g
- f) 6 kg 85 g

4. Add/Subtract/Multiply

- a) 23 kg 170 g + 5 kg 385 g = 28 kg 555 g
- b) 51 kg – 24 kg 395 g = 26 kg 605 g
- c) 19 kg 408 g × 6 = 116 kg 448 g
- d) 15 kg 480 g ÷ 9 = 1 kg 720 g

5. Multiply

$$6 \text{ kg } 45 \text{ g} \times 8 = 48 \text{ kg } 360 \text{ g}$$

6. Add masses

$$112 \text{ kg } 10 \text{ g}$$

7. Subtract

$$9 \text{ kg } 425 \text{ g}$$

8. Word problem

Paul = 43 kg 400 g
Samy = 44 kg 900 g
Total = 88 kg 300 g

9. Fraction of mass

3000 g

10. Total mass problem

Pumpkin = 5 kg 250 g

11. Equal packets

1 packet = 855 g

12. Parcel weights

Parcel A = 15 kg 575 g

13. Tonnes to kg (1 t = 1000 kg)

- a) 2000 kg
- b) 1850 kg
- c) 5200 kg

14. kg to tonnes

- a) 11000 kg = 11 t
- b) 5700 kg = 5.7 t

15. Mixed units

- a) 6285 kg = 6 t 285 kg
- b) 3065 kg = 3 t 65 kg

Unit 13 Money

Exercise 1

1(a) $72.20 + 95.45 = 167.65$ (add decimals)

1(b) $2450 - 945 = 1505$

1(c) $27.30 \times 6 = 163.80$

1(d) $107.60 \div 5 = 21.52$

Exercise 2–4

2(a) $325 + 118.75 + 26.50 = 470.25$ (add)

3(a) $875 - 590 = 285$ (subtract)

4(a) $15 \times 10 + 4 \times 0.50 + 2 \times 0.20 = 152.40$ (total money)

Exercise 5–8

5(a) $37800 \div 4 = 9450$ (share equally)

6(a) $16 \times 275 + 30 \times 150 = 8900$ (total)

7(a) $845 \div 65 = 13$ (divide)

8(a) $330 \div 20 = 16.5 \rightarrow 99$ sweets (groups $\times$ 6)

Exercise 9–12

9(a) $1760 \div 2 = 880$

10(a) Difference = 130 $\rightarrow$ half = 65

11(a–c) Remaining $\div 2 = 83.50$

12(a) Equal notes $\rightarrow$ 20 each

Exercise 13–16

13. Rs. 45000

14. Rs. 35

15. Rs. 2000

16. Rs 110

PROFIT & LOSS

1. Ria buys a book for Rs 280 and sells it for Rs 350.

a) Profit

$$\begin{aligned}\text{Profit} &= \text{Selling Price} - \text{Cost Price} \\ &= 350 - 280 \\ &= \text{Rs } 70\end{aligned}$$

Answer: Rs 85 profit

b) Percentage Profit

$$\begin{aligned}\text{Percentage Profit} &= (\text{Profit} \div \text{Cost Price}) \times 100 \\ &= (85 \div 280) \times 100 \\ &= 30.36\%\end{aligned}$$

Answer: 30.36%

2. A bicycle was sold for Rs 7,660 with a gain of Rs 475.

$$\begin{aligned}\text{Cost Price} &= \text{Selling Price} - \text{Profit} \\ &= 7,660 - 475 \\ &= \text{Rs } 7,185\end{aligned}$$

Answer: Rs 7,185

3. After selling 15 watermelons for Rs 1,875, a fruit seller lost Rs 525.

$$\begin{aligned}\text{Total Cost Price} &= 1,875 + 525 \\ &= \text{Rs } 2,400\end{aligned}$$

$$\begin{aligned}\text{Cost of one watermelon} &= 2,400 \div 15 \\ &= \text{Rs } 160\end{aligned}$$

Answer: Rs 160 per watermelon

4. Jim bought a TV set for Rs 42,000. He sold it at a loss of 25%.

$$\begin{aligned}\text{Loss} &= 25\% \text{ of } 42,000 \\ &= 42,000 \times 25 \div 100 \\ &= \text{Rs } 10,500\end{aligned}$$

$$\begin{aligned}\text{Selling Price} &= 42,000 - 10,500 \\ &= \text{Rs } 31,500\end{aligned}$$

Answer: Rs 31,500

5. A merchant buys an article for Rs 450 and makes a profit of 24%.

$$\begin{aligned}\text{Profit} &= 24\% \text{ of } 450 \\ &= 450 \times 24 \div 100 \\ &= \text{Rs } 108\end{aligned}$$

$$\begin{aligned}\text{Selling Price} &= 450 + 108 \\ &= \text{Rs } 558\end{aligned}$$

Answer: Rs 558

6. Roy sells a drilling machine for Rs 5,600 at a profit of 12%.

Selling Price = 112% of Cost Price

$$\begin{aligned}\text{Cost Price} &= 5,600 \times 100 \div 112 \\ &= \text{Rs } 5,000\end{aligned}$$

Answer: Rs 5,000

7. Kevin buys 4 trays $\times$ 18 oranges at Rs 90 per tray.

$$\begin{aligned}\text{Total oranges} &= 4 \times 18 = 72 \\ \text{Total Cost} &= 4 \times 90 = \text{Rs } 360\end{aligned}$$

Half = 36 oranges

$$\begin{aligned}\text{First half:} \\ 36 \times 6 &= \text{Rs } 216\end{aligned}$$

$$\begin{aligned}\text{Remaining half:} \\ 36 \div 2 &= 18 \text{ pairs} \\ 18 \times 9 &= \text{Rs } 162\end{aligned}$$

$$\begin{aligned}\text{Total Selling Price} &= 216 + 162 \\ &= \text{Rs } 378\end{aligned}$$

$$\begin{aligned}\text{Profit} &= 378 - 360 \\ &= \text{Rs } 18\end{aligned}$$

$$\begin{aligned}\text{Percentage Profit} \\ &= (18 \div 360) \times 100 \\ &= 5\%\end{aligned}$$

Answer: 5% profit

8. Smith bought 250 oranges at 2 for Rs 25.

$$\text{Number of pairs} = 250 \div 2 = 125$$

$$\text{Total Cost} = 125 \times 25 = \text{Rs } 3,125$$

$$\begin{aligned}\text{Rotten oranges} &= 4\% \text{ of } 250 \\ &= 10\end{aligned}$$

$$\begin{aligned}\text{Remaining} &= 250 - 10 \\ &= 240 \text{ oranges}\end{aligned}$$

$$\begin{aligned}\text{Number of groups} &= 240 \div 3 \\ &= 80\end{aligned}$$

$$\begin{aligned}\text{Selling Price} &= 80 \times 50 \\ &= \text{Rs } 4,000\end{aligned}$$

$$\begin{aligned}\text{Profit} &= 4,000 - 3,125 \\ &= \text{Rs } 875\end{aligned}$$

Answer: Rs 875 profit

9. Sam bought 120 oranges for Rs 480 and made a 20% profit overall.

$$\begin{aligned}\text{Required Selling Price} &= 480 + 20\% \text{ of } 480 \\ &= 480 + 96 \\ &= \text{Rs } 576\end{aligned}$$

$$\begin{aligned}\text{Oranges sold first} &= \frac{3}{5} \times 120 \\ &= 72\end{aligned}$$

$$\begin{aligned}\text{Money received} &= 72 \times 5 \\ &= \text{Rs } 360\end{aligned}$$

$$\begin{aligned}\text{Remaining} &= 120 - 72 \\ &= 48 \text{ oranges}\end{aligned}$$

$$\begin{aligned}\text{Money needed} &= 576 - 360 \\ &= \text{Rs } 216\end{aligned}$$

$$\begin{aligned}\text{Price each} &= 216 \div 48 \\ &= \text{Rs } 4.50\end{aligned}$$

Answer: Rs 4.50 per orange

10. Fred sold an article for Rs 1,520 at a loss of Rs 80.

$$\begin{aligned}\text{Cost Price} &= 1,520 + 80 \\ &= \text{Rs } 1,600\end{aligned}$$

$$\begin{aligned}\text{New Selling Price} &= 1,520 + 160 \\ &= \text{Rs } 1,680\end{aligned}$$

$$\begin{aligned}\text{Profit} &= 1,680 - 1,600 \\ &= \text{Rs } 80\end{aligned}$$

$$\begin{aligned}\text{Percentage Profit} &= (80 \div 1,600) \times 100 \\ &= 5\%\end{aligned}$$

Answer: 5% profit

Unit 14: Time

2. Convert minutes to seconds

- a) 180 s
- b) 20 s
- c) 384 s

3. Convert seconds to minutes

- a) 450 s = 7.5 min
- b) 210 s = 3.5 min
- c) 24 s = 0.4 min

4. Hours to minutes

- a) 240 min
- b) 45 min
- c) 95 min

5. Minutes to hours

- a) 660 min = 11 h
- b) 54 min = 0.9 h
- c) 135 min = 2.25 h

6. Hours to seconds

- a) 3600 s
- b) 900 sec
- c) 198 s

7. Seconds to hours

- a) 360 s = 0.1 h
- b) 7200 s = 2 h
- c) 18000 s = 5 h

8. Add/Subtract time

- a) 2 h 30 min + 5 h 17 min = 7 h 47 min
- b) 6 h 45 min + 1 h 25 min = 8 h 10 min
- c) 7 h 50 min + 4 h 35 min = 12 h 25 min
- d) 4 h 10 min + 3 h 45 min = 7 h 55 min

- e) 8 h 55 min - 2 h 40 min = 6 h 15 min
- f) 5 h 15 min - 3 h 40 min = 1 h 35 min

9. Minutes and seconds

- a) $3 \text{ min } 15 \text{ s} + 2 \text{ min } 20 \text{ s} = 5 \text{ min } 35 \text{ s}$
- b) $1 \text{ min } 45 \text{ s} + 1 \text{ min } 35 \text{ s} = 3 \text{ min } 20 \text{ s}$
- c) $7 \text{ min } 55 \text{ s} - 3 \text{ min } 15 \text{ s} = 4 \text{ min } 40 \text{ s}$
- d) $12 \text{ min } 20 \text{ s} - 9 \text{ min } 28 \text{ s} = 2 \text{ min } 52 \text{ s}$

10. Multiply time

- a) $2 \text{ h } 15 \text{ min} \times 2 = 4 \text{ h } 30 \text{ min}$
- b) $5 \text{ h } 14 \text{ min} \times 6 = 31 \text{ h } 24 \text{ min}$
- c) $3 \text{ min } 10 \text{ s} \times 4 = 12 \text{ min } 40 \text{ s}$
- d) $1 \text{ min } 40 \text{ s} \times 5 = 8 \text{ min } 20 \text{ s}$

11.

- a) 4 h 18 min
- b) 1 h 17 min
- c) 20 min 50 sec
- d) 2 min 12 sec

12. Hours in days

- a) 1 day = 24 h
- b) 5 days = 120 h
- c) $\frac{1}{2}$ day = 12 h
- d) $3\frac{1}{4}$ days = 78 h

13.

- a) $2 \text{ days } 5 \text{ h} + 1 \text{ day } 11 \text{ h}$
= 3 days 16 h
- b) $5 \text{ days } 17 \text{ h} + 2 \text{ days } 21 \text{ h}$
= 8 days 14 h
- c) $8 \text{ days } 7 \text{ h} + 3 \text{ days } 20 \text{ h}$
= 12 days 3 h

14.

- $6 \text{ days } 23 \text{ h} - 2 \text{ days } 12 \text{ h}$
= 4 days 11 h

15. Time intervals

- a) 08:30 to 11:40 = 3 h 10 min = 190 min
- b) 10:00 to 16:00 = 6 h = 360 min

16.

- a) 7 years 8 months
- b) 11 years 3 months

17. Duration

9:15 a.m. to 2:25 p.m. = 5 h 10 min

18.

23 years 4 months

19.

12:30 PM

20. Per item time

4 hours = 240 min
 $240 \div 8 = 30 \text{ min per dish}$

UNIT 15: PATTERNS AND SEQUENCES

1. Continue the sequences

1(a) $+5 \rightarrow 45, 50, 55, 60, 65, 70$

1(b) $+7 \rightarrow 214, 221, 228, 235, 242$

1(c) $\times 2 \rightarrow 2, 4, 8, 16, 32, 64$

1(d) $+101 \rightarrow 101, 202, 303, 404, 505, 606$

1(e) $+2, +4, +6, +8, +10, +12 \rightarrow 61, 63, 67, 73, 81, 91, 103$

1(f) $4 \rightarrow 246, 242, 238, 234, 230, 226$

1(g) add previous two $\rightarrow 3, 4, 7, 11, 18, 29, 47$

1(h) square numbers $\rightarrow 1, 4, 9, 16, 25, 36$

1(i) $\div 2 \rightarrow 224, 112, 56, 28, 14, 7$

1(j) $0.6 \rightarrow 7.3, 6.7, 6.1, 5.5, 4.9, 4.3$

2. Add the next terms

2(a) Numerator $+3$, denominator stays 25 $\rightarrow 2/25, 5/25, 8/25, 11/25, 14/25, 17/25, 20/25$

2(b) Denominator $+4$, numerator stays 7 $\rightarrow 7/17, 7/21, 7/25, 7/29, 7/33, 7/37, 7/41$

2(c) Subtract $2/3$ each time $\rightarrow 6, 5 \frac{1}{3}, 4 \frac{2}{3}, 4, 3 \frac{1}{3}, 2 \frac{2}{3}, 2$

3. Complete the pairs

3(a) Left $+4$, right $+10 \rightarrow (70,100), (74,110), (78,120), (82,130), (86,140)$

3(b) Left $\times 2$, right $-15 \rightarrow (10,90), (20,75), (40,60), (80,45), (160,30)$

3(c) Left -10 , right $+10 \rightarrow (140,10), (130,20), (120,30), (110,40), (100,50)$

4. Next term

4. $\times 3$ each time $\rightarrow 7, 21, 63, 189, 567$

Unit 16 – Powers

Exercise 1

1(a)

$$2 \times 2 \times 2 \times 2 = 2^4$$

1(b)

$$5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 = 5^7$$

1(c)

$$10 \times 10 \times 10 = 10^3$$

1(d)

$$6 \times 6 \times 6 \times 6 \times 6 \times 6 = 6^6$$

Exercise 2

2(a)

$$32 = 3 \times 3$$

2(b)

$$47 = 4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4$$

Exercise 3

3(a)

$$16 = 2^4$$

3(b)

$$729 = 3^6$$

3(c)

$$625 = 5^4$$

3(d)

$$343 = 7^3$$

Exercise 4

4(a)

$$53 = 125$$

4(b)

$$10^4 = 10000$$

4(c)

$$35 = 243$$

4(d)

$$7^4 = 2401$$

Exercise 5

5(a)

$$3^4 = 81$$

5(b)

$$2^7 = 128$$

Exercise 6

6(a)

$$3^5 + 2^2 = 243 + 4 = 247$$

6(b)

$$4^3 + 6^2 = 64 + 36 = 100$$

Exercise 7

7(a)

$$12^2 - 7 = 144 - 7 = 137$$

7(b)

$$6.3 \times 10^2 = 630$$

7(c)

$$12^4 \div 3^3 = 768$$

7(d)

$$8^3 \div 2^3 = 64$$

Unit 17 – Calendar & Time

Exercise 1

1(i)

January = 31 days

1(ii)

September = 30 days

1(iii)

December = 31 days

Exercise 2

February 2018 = 28 days

Exercise 3

February 2000 + February 2001 = 29 + 28 = 57 days

Exercise 4

Sundays in July 2019 = 7, 14, 21, 28 → 4 Sundays

Exercise 5

15 Jan to 12 Mar 2020 = 57 days

Exercise 6

8 September 2014 = Monday

Exercise 7

1998 = common year

Exercise 8

9 Nov 2017 to 7 Jan 2018 = 60 days

Exercise 9

Tuesday + 15 days = Wednesday

Exercise 10

Jenny was born on Sunday 28 August

Exercise 11

19 July to 3 August = 16 days

Exercise 12

12(a)

9:15 a.m. = 09:15

12(b)

10 30 = 10:30 a.m.

12(c)

5:25 p.m. = 17:25

12(d)

22 00 = 10:00 p.m.

Exercise 13

20:00 in Mauritius = 11:00 in New York

Exercise 14

22:15 in Singapore = 19:45 in Mauritius

Exercise 15

Flight time = 12 h 40 min

Exercise 16

Plane landed in Mauritius at 03:45

Exercise 17

Ship arrived on Monday at 04:45

Exercise 18

$2015 - 1943 = 72$ years

Exercise 19

19

November 2018: 1 Nov was Thursday, so 16 Nov was Friday.

19(a)

Last day of October 2018 = Wednesday

19(b)

Christmas 2018 = Tuesday

Exercise 20

Total working hours = 61 hours

Unit 18 – Area

1. Rectangles (Area = $L \times W$)

1(a)

40 cm²

1(b)

39 cm²

1(c)

43.2 cm²

1(d)

91 cm²

2. Square

169 cm² (13×13)

3. Right-angled triangles ($\frac{1}{2} \times \text{base} \times \text{height}$)

3(a)

16 cm² ($\frac{1}{2} \times 3.2 \times 10$)

3(b)

90 cm² ($\frac{1}{2} \times 15 \times 12$)

4. Square

4.84 m² (2.2×2.2)

5. Table

5(a)

Width = 11 cm ($176 \div 16$)

5(b)

Width = 7.6 m ($60.8 \div 8$)

6. Square field

3844 m²

7. Rectangle

243 cm²

8. Stickers

8(a)

$$1280 \text{ cm}^2 (20 \times 8^2)$$

8(b)

$$\text{Length} = 40 \text{ cm } (1280 \div 32)$$

9. Path

$$\text{Outer} = 42 \times 30 = 1260 \text{ m}^2; \text{ Inner} = 39 \times 27 = 1053 \text{ m}^2 \rightarrow \text{Path} = 207 \text{ m}^2$$

Unit 19 – Percentage

1. Write as percentages

1(a)

$$50\% \left(\frac{1}{2} = \frac{50}{100} \right)$$

1(b)

$$40\% \left(\frac{2}{5} = \frac{40}{100} \right)$$

1(c)

$$70\% \left(\frac{7}{10} = \frac{70}{100} \right)$$

1(d)

$$55\% \left(\frac{11}{20} = \frac{55}{100} \right)$$

1(e)

$$36\% \left(\frac{9}{25} = \frac{36}{100} \right)$$

1(f)

$$52\% \left(\frac{13}{25} = \frac{52}{100} \right)$$

1(g)

$$6\% \left(\frac{3}{50} = \frac{6}{100} \right)$$

1(h)

$$125\% \left(1 \frac{1}{4} = 1.25 \right)$$

1(i)

$$260\% \left(2 \frac{3}{5} = 2.6 \right)$$

2. Convert percentages into fractions

2(a)

$$16\% = \frac{4}{25} \text{ (write over 100, then simplify)}$$

2(b)

$$20\% = \frac{1}{5} \text{ (write over 100, then simplify)}$$

2(c)

$$32\% = \frac{8}{25} \text{ (write over 100, then simplify)}$$

2(d)

$$75\% = \frac{3}{4} \text{ (write over 100, then simplify)}$$

2(e)

$$90\% = \frac{9}{10} \text{ (write over 100, then simplify)}$$

3–4. Word questions

3

$$60\% \left(\frac{3}{5} = \frac{60}{100} \right)$$

4

$$72\% \text{ (lost } \frac{7}{25} = 28\%, \text{ so still has } 100\% - 28\%)$$

5. Convert decimals into percentages

5(a)

$0.3 = 30\%$ (multiply by 100)

5(b)

$0.01 = 1\%$ (multiply by 100)

5(c)

$0.23 = 23\%$ (multiply by 100)

5(d)

$0.54 = 54\%$ (multiply by 100)

5(e)

$0.97 = 97\%$ (multiply by 100)

5(f)

$2.9 = 290\%$ (multiply by 100)

5(g)

$4.1 = 410\%$ (multiply by 100)

6. Write percentages as decimals

6(a)

$6\% = 0.06$ (divide by 100)

6(b)

$9\% = 0.09$ (divide by 100)

6(c)

$28\% = 0.28$ (divide by 100)

6(d)

$37\% = 0.37$ (divide by 100)

6(e)

$71\% = 0.71$ (divide by 100)

7. Complete the table

7(a)

$25\% = \frac{1}{4} = 0.25$

7(b)

$28\% = \frac{7}{25} = 0.28$

7(c)

$3\% = \frac{3}{100} = 0.03$

7(d)

$65\% = \frac{13}{20} = 0.65$

7(e)

$55\% = \frac{11}{20} = 0.55$

8. Calculate

8(a)

$8\% \text{ of } 400 = 32$

8(b)

$20\% \text{ of } 80 \text{ kg} = 16 \text{ kg}$

8(c)

$16\% \text{ of } 50 \text{ L} = 8 \text{ L}$

8(d)

$120\% \text{ of } 60 \text{ km} = 72 \text{ km}$

9–14. Percentage word problems

9

390 adults (60% of 650)

10(a)

12 beads (15% of 80)

10(b)

68 beads left ($80 - 12$)

11(a)

32% (24 out of 75)

11(b)

15% (15 cm out of 100 cm)

11(c)

20% (60 out of 300)

11(d)

18% (450 g out of 2500 g)

11(e)

50% (81 out of 162)

11(f)

8% (26 cL out of 325 cL)

12

405 girls (45% of 900)

13

30 children (60% of 50)

14(a)

63 red beads (35% of 180)

14(b)

117 blue beads ($180 - 63$)

14(c)

54 more blue beads ($117 - 63$)

15–25. Increase, decrease, and reverse percentage

15

Rs 600 (80% = Rs 480, so 100% = Rs 600)

16

48 marbles lost (88% = 352, so 12% = 48)

17

Rs 18 375 (5% increase = Rs 875)

18

Rs 7 776 (8% increase = Rs 576)

19

7% increase (increase = 168; $168/2400 \times 100$)

20

Rs 9 000 (115% = Rs 10 350)

21

Rs 8 448 (12% decrease from Rs 9600)

22

5% decrease ($1200/24000 \times 100$)

23

8% decrease ($48/600 \times 100$)

24

Rs 50 000 (42% = Rs 21 000)

25

30 000 inhabitants (45% = 13 500)

26–30. Profit and loss percentages

26

24% profit (profit = 600; $600/2500 \times 100$)

27

12.5% loss (loss = 500; $500/4000 \times 100$)

28

30% profit (cost price = $325 - 75 = 250$)

29

Rs 690 (8% loss of Rs 750 = Rs 60)

30

7% loss (cost price = $4650 + 350 = 5000$)

Unit 20 - Average

1. Find the average

1(a)

$$15 \text{ } ((10 + 15 + 20) / 3)$$

1(b)

$$125 \text{ } ((50 + 100 + 150 + 200) / 4)$$

1(c)

$$15 \text{ } ((14.4 + 18.2 + 13.6 + 12.4 + 16.4) / 5)$$

1(d)

$$3.75 \text{ or } 3 \frac{3}{4} \text{ } ((5 \frac{1}{2} + 3 + 4 + 2 \frac{1}{2}) / 4)$$

2. Weight of the second box

$$6 \text{ kg } 800 \text{ g (total = } 4 \text{ kg } 600 \text{ g} \times 2 = 9 \text{ kg } 200 \text{ g; second = } 9 \text{ kg } 200 \text{ g} - 2 \text{ kg } 400 \text{ g)}$$

3. Fill in the blanks

3(a)

$$\text{Average mass} = 15 \text{ kg (105 kg / 7)}$$

3(b)

$$\text{No. of items} = 10 \text{ (300 kg / 30 kg)}$$

3(c)

$$\text{Total mass} = 441 \text{ kg (21} \times 21 \text{ kg)}$$

4. Height of the fifth family member

$$144 \text{ cm (total height = } 150 \times 5 = 750 \text{ cm; known total = } 153 + 150 + 151 + 152 = 606 \text{ cm)}$$

5. Average speed

5

12 $\frac{2}{7}$ km/h (total distance = 42 + 44 = 86 km; total time = 3 + 4 = 7 h)

6. Average score

6

84 marks (total = 88 + 96 + 87 + 89 + 80 + 64 = 504; 504 / 6)

7. Sale needed in the sixth month

7

Rs 5450 (target total = 6500 × 6 = 39000; first 5 months = 33550)

8. Average amount spent

8

Rs 60 ((Rs 46.50 + Rs 60 + Rs 73.50) / 3)

9. Average mass of the remaining boxes

9

1244 g (total mass = 560 × 5 = 2800 g; three boxes = 104 × 3 = 312 g; remaining = 2488 g; 2488 / 2)

10. Sam, Raj and Dev

10(i) Dev

Rs 295

10(ii) Raj

Rs 360 (total = $315 \times 3 = 945$; Raj + Dev = $945 - 290 = 655$; Dev = Raj - 65)

11. Average age of Bob, Prem and Ryan

11

21 years (Bob = 19, Prem = 16, Ryan = 28; total = 63; $63 / 3$)

12. Money the fourth boy has

12

Rs 685 (first two boys = $480 + 480 = 960$; remaining = $2240 - 960 = 1280$; third = fourth - 90)

13. Average ages

13(i)

12 years 3 months (in 2 years, the average also increases by 2 years)

13(ii)

36 years 3 months (current total = 5×10 years 3 months = 51 years 3 months; subtract 15 years)

14. Mass of the mother

14

55 kg (children total = $3 \times 38 = 114$ kg; all 5 total = $5 \times 46 = 230$ kg; parents total = 116 kg; father is 6 kg more)

Unit 21 - Ratio

Clean format: answer first, then a shortmethodinbrackets.

1. Ratio of children

1(a)

Girls to boys = 2 : 5

1(b)

Boys to girls = 5 : 2

1(c)

Girls to total children = 2 : 7

2. Ratio of furniture

2(a)

Chairs to tables = 4 : 6 = 2 : 3

2(b)

Tables to total furniture = 6 : 10 = 3 : 5

3. Equivalent ratios

3

6 : 10 and 9 : 15 (multiply both parts by the same number)

4. True or False

4(a)

False

4(b)

True

5. Convert fractions into ratios

5(a)

$\frac{2}{5} = 2 : 5$

5(b)

$\frac{5}{9} = 5 : 9$

5(c)

$\frac{13}{25} = 13 : 25$

5(d)

$1\frac{2}{5} = \frac{7}{5} = 7 : 5$

6. Simplify ratios

6(a)

$$5 : 10 = 1 : 2$$

6(b)

$$4 : 12 = 1 : 3$$

6(c)

$$15 : 50 = 3 : 10$$

6(d)

$$100 : 40 = 5 : 2$$

7. Whole figure to shaded part

7

$$12 : 5 \text{ (12 parts altogether, 5 shaded)}$$

8. Express as simple ratios

8(a)

$$14 \text{ kg to } 42 \text{ kg} = 1 : 3$$

8(b)

$$200 \text{ mL to } 350 \text{ mL} = 4 : 7$$

8(c)

$$1.5 \text{ m to } 90 \text{ cm} = 150 \text{ cm} : 90 \text{ cm} = 5 : 3$$

8(d)

$$900 \text{ s to } 12 \text{ min} = 900 \text{ s} : 720 \text{ s} = 5 : 4$$

9. Pears to total fruits

9

$$3 : 8 \text{ (12 pears, 32 fruits altogether)}$$

10. Boys and girls

10(a)

$$18/42$$

10(b)

$$3/7 \text{ (lowest term)}$$

10(c)

$$\text{Girls to total children} = 24 : 42 = 4 : 7$$

11. Fish money to total expenses

11

5 : 13 (Rs250 : Rs650)

12. Books and copybooks

12

16 books (7 parts = 28 copybooks, so 1 part = 4)

13. Distance travelled

13

21 km (5 parts = 35 km, so 1 part = 7 km; Sam = 3 parts)

14. Lorries and delivery vans

14(a)

88 delivery vans (7 parts = 56, so 1 part = 8; vans = 11 parts)

14(b)

144 vehicles (56 + 88)

15. Boys and girls in a class

15

6 more boys (4 : 3, total parts = 7, 1 part = 6)

16. Money saved by Tom and Jim

16(a)

Tom saved Rs 56 (Jim's 5 parts = Rs 40, so 1 part = Rs 8)

16(b)

Total saved = Rs 96 (Rs 56 + Rs 40)

17. New ratio

17

11 : 12 (boys 200 + 20 = 220; girls 250 - 10 = 240)

Unit 22 – Proportion

Direct Proportion

Exercise 1

1(a)

Rs 10 ($2 \times \text{Rs } 5$)

1(b)

Rs 25 ($5 \times \text{Rs } 5$)

Exercise 2

2(a)

Rs 80 ($10 \times \text{Rs } 8$)

2(b)

Rs 192 ($24 \times \text{Rs } 8$)

Exercise 3

3

490 apples (35×14)

Exercise 4

4

2212 shirts (316×7)

Exercise 5

5

300 cakes (50×6)

Exercise 6

6

108 players (6×18)

Exercise 7

7

Rs 24 $\rightarrow$ D

Exercise 8

8

Rs 600 $\rightarrow$ C

Exercise 9

9

Rs 297

Exercise 10

10

9 trays

Exercise 11

11

Rs 2400

Exercise 12

12

Rs 260

Exercise 13

13(a)

Bob = 6 minutes

13(b)

Sarah = 4 minutes

13(c)

Sarah is faster

Exercise 14

14

60 pears

Exercise 15

15

35 days

Inverse Proportion

Exercise 1

1

8days($4 \times 12 = 48$; $48 \div 6 = 8$)

Exercise 2

2

15days($12 \times 25 = 300$; $300 \div 20 = 15$)

Exercise 3

3

6hours($9 \times 18 = 162$; $162 \div 27 = 6$)

Exercise 4

4

24 hours ($6 \times 52 = 312$; $312 \div 13 = 24$)

Unit 23 – Use of Area

Exercise 1

1(a)

$$96 \text{ mm}^2 (6 \times 4^2)$$

1(b)

$$1350 \text{ cm}^2 (6 \times 15^2)$$

1(c)

$$47.04 \text{ cm}^2 (6 \times 2.8^2)$$

Exercise 2

2(a)

$$54 \text{ cm}^2 (6 \times 3^2)$$

2(b)

$$600 \text{ cm}^2 (6 \times 10^2)$$

2(c)

$$1536 \text{ cm}^2 (6 \times 16^2)$$

2(d)

$$384 \text{ cm}^2 (6 \times 8^2)$$

Exercise 3

3

$$5\text{cm}(150 \div 6 = 25; \quad \sqrt{25} = 5)$$

Exercise 4

4

$$4410\text{cm}^2(1\text{box} = 6 \times 7^2 = 294 \text{ cm}^2; 294 \times 15)$$

Exercise 5

5

$$1690\text{cm}^2(2\text{cubes surface area} - \text{joined faces})$$

Exercise 6

6(a)

$$52 \text{ cm}^2$$

6(b)

$$208 \text{ cm}^2$$

Exercise 7

7(a)

15 cm²

7(b)

17.5 cm²

7(c)

22.5 cm²

Exercise 8

8

30cm²($\frac{1}{2} \times 12 \times 5$)

Exercise 9

9(a)

108 cm²

9(b)

42 cm²

9(c)

55 cm²

Tiling

Exercise 1

600 tiles

Exercise 2

1050 tiles

Exercise 3

6000 slabs

Exercise 4

6300 tiles

Exercise 5(a)

4500 tiles

Exercise 5(b)

Rs 2,925,00

Exercise 6

6800 tiles

Exercise 7

4.2 m

Exercise 8

Rs 7470

Unit 24 – Angles

Exercise 1

- a) Right angle
- b) Acute angle
- c) Reflex angle
- d) Straight angle
- e) Obtuse angle

Exercise 2

- a) $90^\circ - 58^\circ = 32^\circ$
- b) $90^\circ - 20^\circ = 70^\circ$
- c) $90^\circ - (30^\circ + 10^\circ) = 50^\circ$

Exercise 3

- a = b = c
3 angles on a straight line = 180°
 $b = 180^\circ \div 3 = 60^\circ$

Exercise 4

- a) $180^\circ - 70^\circ = 110^\circ$
- b) $180^\circ - 70^\circ - 70^\circ = 40^\circ$
- c) $180^\circ - 40^\circ - 30^\circ - 25^\circ = 85^\circ$
- d) $180^\circ - 120^\circ - 35^\circ = 25^\circ$

Exercise 5

- a) $360^\circ - 170^\circ - 100^\circ = 90^\circ$
- b) $360^\circ - 28^\circ = 332^\circ$

Exercise 6

- a) $40^\circ + d = 90^\circ$
 $d = 25^\circ$ so $c = 25^\circ$
- b) $c + d + 80^\circ = 180^\circ$
 $c = d = 50^\circ$

Exercise 7

- a) $a + b = 90^\circ$ and $a = b + 30^\circ$
 $b = 30^\circ$, $a = 60^\circ$
- b) $a + b = 180^\circ$ and $a = b + 30^\circ$
 $b = 75^\circ$, $a = 105^\circ$

Exercise 8

- a) $r = 2s$ and $r + s = 90^\circ$
 $s = 30^\circ$

b) $r = 2s$ and $r + s = 180^\circ$

$s = 60^\circ$

Exercise 9

a) $p:q = 2:3$ and total = 90°

$p = 36^\circ$, $q = 54^\circ$

b) $p:q = 2:3$ and total = 180°

$p = 72^\circ$, $q = 108^\circ$

Exercise 10

$t = 150^\circ$

Exercise 11

$a = 135^\circ$, $b = 85^\circ$

Exercise 12

$c = 76^\circ$

Exercise 13

a) $180^\circ - 70^\circ - 35^\circ = 75^\circ$

b) $90^\circ - 42^\circ = 48^\circ$

c) 128°

Exercise 14

$d = e = f$

3 equal angles in triangle = 180°

$e = 60^\circ$

Exercise 15

$m:n = 2:4 = 1:2$

$30^\circ + m + n = 180^\circ$

$m = 50^\circ$

Exercise 16

$180^\circ - 70^\circ - 80^\circ = 30^\circ$

Exercise 17

Isosceles triangle $\rightarrow$ base angles equal

$c = 180^\circ - 72^\circ - 72^\circ = 36^\circ$

Exercise 18

a) $360^\circ - 115^\circ - 68^\circ - 90^\circ = 87^\circ$

b) Bottom right inside angle = $180^\circ - 145^\circ = 35^\circ$

Shaded angle = $360^\circ - 70^\circ - 105^\circ - 35^\circ = 150^\circ$

Exercise 19

$$f = g$$

$$f + g + 103^\circ + 85^\circ = 360^\circ$$

$$g = 86^\circ$$

Exercise 20

$$a = 132^\circ$$

Exercise 21

$$n = 76^\circ$$

Exercise 22

$$\text{Angle } S = U = (180^\circ - 42^\circ) \div 2 = 69^\circ$$

$$\text{Diagonal of square makes } 45^\circ$$

$$\text{Shaded angle} = 69^\circ + 45^\circ = 114^\circ$$

Unit 25 – Charts Answers

Pictograms

Exercise 1

- a) 9
- b) 1
- c) Banana
- d) 20

Exercise 2

- a) Bus
- b) 6 pupils
- c) Foot and School Van
- d) 9
- e) 66
- f) 1/11

Exercise 3

Use 1 symbol = 4 pupils

4 Red = 5 symbols

4 Blue = 6 symbols

5 Red = 8 symbols

5 Blue = 7 symbols

6 Red = 10 symbols

6 Blue = 9 symbols

Exercise 4

- a) 21
- b) History & Geography
- c) 112

Exercise 5

- a) Rs14000
- b) 21 3/7%
- c) 2 : 5

Bar Charts

Exercise 1

Maths 90, English 75, French 60, Science 80, His/Geo 60

Exercise 2

- b) Thursday
- c) Wednesday
- d) Rs 30
- e) Rs 210

Exercise 3

- a) 11
- b) Grades 2 and 5
- c) 6
- d) Draw bar up to 6
- e) 43

Pie Charts

Exercise 1

- a) $p = 75^\circ$
- b) $x = 135^\circ$
- c) $m = 215^\circ$
- d) $r = 110^\circ$

Exercise 2

French

Exercise 3

- a) 120°
- b) 28 boys

Exercise 4

- a) Car
- b) 135
- c) 90

Exercise 5

- a) $x = 80^\circ$
- b) Rs 2375
- c) 16 : 23

Exercise 6

- a) 60°
- b) 42 girls

Unit 26 – Coordinates and Line Graphs Answers

Coordinates

Exercise 1

A = (1, 5)
B = (2, 2)
C = (5, 4)
D = (7, 3)
E = (10, 6)

Exercise 2

Plot:
I (2, 2)
J (4, 0)
K (6, 2)
L (4, 6)

Exercise 3

A = (4, 5)
B = (6, 5)
C = (7, 3)
D = (6, 1)
E = (4, 1)
F = (3, 3)

Shape ABCDEF = Hexagon

Exercise 4

Shape KLMN = Parallelogram
Property: Opposite sides are parallel.

Line Graphs

Exercise 1

a) 30 km/h
b) 2 hours
c) 285 km

Exercise 2

a) 120cm
b) 5 years old

Unit 27 – Volume Answers

Exercise 1

Volume = 7 cm^3

Exercise 2

- a) 512 cubes
- b) 1000 cubes

Exercise 3

27 cubes

Exercise 4

$3.5^3 = 42.875$
Answer: 42.875 m^3

Exercise 5

$8 \times 5.5 \times 3 = 132$
Answer: 132 cm^3

Exercise 6

$1440 \div (15 \times 12) = 8$
Answer: 8 cm

Exercise 7

$0.7 \text{ m} = 70 \text{ cm}$
 $70^3 = 343000$
Answer: 343000 cm^3

Exercise 8

Width = 10 cm

Exercise 9

- a) Length = 21 cm
- b) Width = 14 cm

Exercise 10

$12 \times 8 \times 15 = 1440$
Answer: 1440 m^3

Exercise 11

Depth = 0.6 m

Exercise 12

- a) Volume cut out = 0.25 m^3
- b) Volume left = 89.75 m^3

Exercise 13

- a) 38 cubes
- b) 50 cm^3

Exercise 14

800 small boxes

Relationship Between Capacity and Volume – Exercise 1

9
L

Exercise 2

125 cups

Exercise 3

25 cm

Exercise 4

100 hours

Unit 28 – Speed

1. Bala drives 498 km in 6 hours. Calculate his average speed in km/h.

- $498 \div 6 = 83$
- Answer: **83 km/h**

2. Niven ran 70 metres in 20 seconds. What was his average speed in m/s?

- $70 \div 20 = 3.5$
- Answer: **3.5 m/s**

3a. John cycles 250 metres in one minute. How far does he cycle in 1 hour?

- 1 hour = 60 minutes
- Distance in 1 hour = 250×60
- = 15,000 m
- Answer: **15,000 m**

3b. Calculate his average speed in km/h.

- $15,000 \text{ m} = 15 \text{ km}$
- Average speed = $15 \div 1$
- Answer: **15 km/h**

4. An aeroplane covered a distance of 1320 km at an average speed of 165 km/h. How long did the aeroplane take?

- $1320 \div 165 = 8$

- Answer: **8 hours**

5. Express a speed of 25 m/min in km/h.

- $25 \text{ m/min} \times 60 = 1500 \text{ m/h}$
- $1500 \text{ m} = 1.5 \text{ km}$
- Answer: **1.5 km/h**

6. A lorry travels for 3 hours and covers 240 km. What is the speed of the lorry in km/h?

- $240 \div 3 = 80$
- Answer: **80 km/h**

7. A bus covers a distance of 180 km in 4 hours. Find its average speed.

- $180 \div 4 = 45$
- Answer: **45 km/h**

8. Bob ran 800 m in 100 seconds. Find his average speed in metres per second.

- $800 \div 100 = 8$
- Answer: **8 m/s**

9. A coach covers a distance of 325 km in $6\frac{1}{2}$ hours. What is its average speed?

- $6\frac{1}{2} \text{ hours} = 6.5 \text{ hours}$
- Average speed = $325 \div 6.5$
- = 50
- Answer: **50 km/h**

10a. A taxi travelled at an average speed of 55 km/h. What distance did it cover in 3 h?

- Distance = Speed $\times$ Time
- $55 \times 3 = 165$
- Answer: **165 km**

10b. What distance did it cover in $4\frac{1}{2}$ h?

- $4\frac{1}{2} \text{ h} = 4.5 \text{ h}$
- Distance = 55×4.5
- $= 247.5$
- Answer: **247.5 km**

11. A lorry left Port Louis for Goodlands at 09:10 and travelled at 36 km/h. It stopped for 10 minutes and reached Goodlands at 09:55. What is the distance?

- Total time from 09:10 to 09:55 = 45 min
- Travelling time = $45 - 10 = 35 \text{ min}$
- $35 \text{ min} = 35/60 \text{ h}$
- Distance = $36 \times 35/60$
- $= 21$
- Answer: **21 km**

12a. A bus travels for 40 minutes at 48 km/h. It then travels a further 55 km increasing the speed by 18 km/h. Find the total distance travelled.

- $40 \text{ min} = 2/3 \text{ h}$
- First distance = $48 \times 2/3 = 32 \text{ km}$
- Second distance = 55 km
- Total distance = $32 + 55$
- Answer: **87 km**

12b. Find the total time taken in hours.

- New speed = $48 + 18 = 66$ km/h
- Time for second part = $55 \div 66 = 5/6$ h
- Total time = $2/3 + 5/6$
- = $9/6 = 1.5$ h
- Answer: **1.5 hours**

12c. Find the average speed for the whole journey.

- Average speed = Total distance $\div$ Total time
- $87 \div 1.5 = 58$
- Answer: **58 km/h**

13. Bala cycles over a certain distance for 3 hours at 35 km/h. How long will Dev take if he cycles twice as fast over the same distance?

- Distance travelled by Bala = $35 \times 3 = 105$ km
- Dev's speed = $35 \times 2 = 70$ km/h
- Time = $105 \div 70$
- = 1.5
- Answer: **1.5 hours** or **1 h 30 min**

14. A man walked for 3 hours at 4.5 km/h and cycled at 15 km/h. Altogether he travelled 21 km. Find the time taken for cycling.

- Walking distance = $4.5 \times 3 = 13.5$ km
- Cycling distance = $21 - 13.5 = 7.5$ km
- Cycling time = $7.5 \div 15$
- = 0.5
- Answer: **0.5 hours** or **30 minutes**

Supplementary Exercises

1. Decrease 56 in the ratio 7:8.

- New value = $56 \times \frac{7}{8}$
- = 49
- Answer: **49**

2. A train travels at an average speed of 15 m/s. What is its average speed in km/h?

- Convert m/s to km/h by multiplying by 3.6
- $15 \times 3.6 = 54$
- Answer: **54 km/h**

3. Find the cost of 13 kg of biscuits if 8 kg cost Rs270.

- Cost of 1 kg = $270 \div 8 = 33.75$
- Cost of 13 kg = 33.75×13
- = 438.75
- Answer: **Rs438.75**

4. A watch costing Rs600 is sold for Rs500. Find the percentage loss.

Percentage loss:

Answer: $16\frac{2}{3}\%$ loss

5. Calculate the area of shape A.

- The shape is a trapezium.
- Area = $\frac{1}{2} \times (\text{sum of parallel sides}) \times \text{height}$

- Area = $\frac{1}{2} \times (28 + 40) \times 16$
- = 544 cm²
- Answer: **544 cm²**

6. Four pipes can fill a tank in 70 minutes. How long will it take if 7 pipes are used?

- Time is inversely proportional to number of pipes.
- Time = $(4 \times 70) \div 7$
- = 40
- Answer: **40 minutes**

7. 75% of the pupils in a class of 40 passed a Science Test. How many pupils failed?

- Passed = 75% of 40
- = $0.75 \times 40 = 30$
- Failed = $40 - 30$
- = 10
- Answer: **10 pupils**

8. The figure ABCD is a rectangle. The ratio of its length to its width is 5 : 4. If the length is 300 m, find the area.

- Length : Width = 5 : 4
- Width = $300 \times \frac{4}{5} = 240$ m
- Area = 300×240
- = 72,000 m²
- Answer: **72,000 m²**

9. The average of 2 numbers is 15. A third number, 39, is added. Find the average of the three numbers.

- Sum of first 2 numbers = $15 \times 2 = 30$
- New total = $30 + 39 = 69$

- Average = $69 \div 3$
- = 23
- Answer: **23**

10. The sum of two consecutive even numbers is 1246. What are the two numbers?

- Answer: **622 and 624**

11. Calculate angle x and angle y.

- Answer: **$x = 75^\circ$, $y = 79^\circ$**

12. A worker can dig 35 m² of a garden in 5 hours. What area can he dig in 3½ hours?

- Area dug per hour = $35 \div 5 = 7 \text{ m}^2$
- 3½ hours = 3.5 hours
- Area in 3.5 hours = 7×3.5
- = 24.5 m²
- Answer: **24.5 m²**