

FA - 4
Class - VI
Mathematics

FA-4 CLASS - VII MATHS

Chapter 9. Percentage and its Application

Exercise 9.1

2. Express $\frac{9}{10}$ in decimal, fraction and percentage form.

Decimal form $\rightarrow 0.9$

Percentage form $\rightarrow \frac{9}{10} \times \frac{10}{10} = \frac{90}{100} = \underline{90\%}$.

3. Convert into percents.

a) $\frac{1}{2} \rightarrow \frac{1 \times 100}{2 \times 100} = \frac{50}{100} = \underline{50\%}$

4. Convert . . . into Percents.

a) $0.77 \Rightarrow 0.77 \times \frac{100}{100} = \frac{77}{100} = \underline{77\%}$

- 5). Express as fraction into lowest forms.

a) $82\% = \frac{82}{100} = \frac{41}{50}$

- 6) Convert . . . into decimals.

a) $19\% = \frac{19}{100} = \underline{0.19}$.

7). % of amount spent for buying books = 72% .

% of amount spent for buying gift = $100 - 72\%$
 $= \underline{28\%}$.

10. No. of novels in the rack = 64.

Total No. of books in the rack = 80.

% of novels = $\frac{64}{80} \times 100 = \underline{80\%}$.

Increase or Decrease as Percent

Increase % = $\frac{\text{Difference}}{\text{Original Value}} \times 100 = \text{Decrease \%}$

Exercise 9.2

1. Find 30% of 700

$$\frac{30}{100} \times 700 = 210$$

2. Evaluate 25% of Rs 300

$$\frac{25}{100} \times 300 = \text{Rs } 75$$

3. Total wt. of pulses = 2Kg = 2000gms.
% of pulses used for making sweets = 30%
Wt of pulses used " " = 30% of 2000
 $= \frac{30}{100} \times 2000 = 600\text{gms.}$

9. Find the whole quantity if 6% of it is 30.
Let x be the whole quantity.

$$6\% \text{ of } x = 30$$

$$\frac{6}{100} \times x = 30$$

$$x = \frac{30 \times 100}{6} = \underline{500}$$

14. Convert 3:7 into percent

$$\text{I}^{\text{st}} \text{ part} = \frac{3}{10} \times 100 = \underline{30\%}$$

$$\text{II}^{\text{nd}} \text{ part} = \frac{7}{10} \times 100 = \underline{70\%}$$

17. Price of a suitcase price of the suitcase.

$$\text{Original Price} = \text{Rs } 3,200.$$

$$\text{Increased Price} = \text{Rs } 3,500$$

$$\text{Difference} = 3,500 - 3,200 = 300$$

$$\text{Increase \%} = \frac{\text{Diff}}{\text{Original Price}} \times 100 = \frac{300}{3200} \times 100$$

$$= \underline{9.375\%}$$

Profit and Loss.

$$\text{Profit} = \text{S.P.} - \text{C.P.} \quad , \quad \text{Loss} = \text{C.P.} - \text{S.P.}$$

$$\text{Profit \%} = \frac{\text{Profit}}{\text{C.P.}} \times 100$$

$$\text{Loss \%} = \frac{\text{Loss}}{\text{C.P.}} \times 100$$

Exercise 9.3.

2. C.P of 120 oranges = Rs 500.

Overhead expenses = Rs 60.

Net C.P. = Rs 560.

S.P of 1 dozen oranges. Rs 58.8

S.P of 10 dozen (120) oranges = Rs 588.

S.P > C.P \rightarrow Profit

Profit = S.P - C.P = 588 - 560 = 28.

Profit % = $\frac{\text{Profit}}{\text{C.P.}} \times 100 = \frac{28 \times 100}{560} = \underline{\underline{5\%}}$

3. C.P of Watch = Rs 375.

Overhead expenses = Rs 15.

Net C.P = 375 + 15 = Rs 390.

Profit % = 12%.

Profit = 12% of C.P = $\frac{12}{100} \times 390 = 46.8$

S.P = C.P + Profit = 390 + 46.8 = Rs 436.8

7. S.P = Rs 4,320.

P% = 8%

S.P = C.P + 8% of C.P = C.P + $\frac{8}{100} \times \text{C.P.} = \text{C.P.} \left(1 + \frac{8}{100}\right)$

4320 = C.P $\left(\frac{108}{100}\right)$

C.P = $\frac{4320 \times 100}{108} = \underline{\underline{\text{Rs } 4000}}$

Simple Interest.

$$S.I = \frac{PRT}{100} \quad \text{Amount} = P + I$$

Exercise 9:4

1. $P = R_3 4000, R = 15\%, T = 2 \text{ yrs.}$

$$I = \frac{PRT}{100} = \frac{4000 \times 15 \times 2}{100} = R_1200$$

$$A = P + I = 4000 + 1200 = \underline{R_5200}$$

2. $P = R_3 10,000, R = 15\%, T = 3 \text{ yrs.}$ $I = \frac{PRT}{100} = \frac{10,000 \times 15 \times 3}{100}$
 $= R_4500$

$$\text{Amount} = P + I$$

$$= 10,000 + 4500 = \underline{R_14500}$$

3. $I = 3600, T = 3 \text{ yrs, } R = 3\%, P = ?$

$$P = \frac{I \times 100}{R \times T} = \frac{3600 \times 100}{3 \times 3} = R_40000$$

4. $P = R_3 10,000, R = 18\%, A = R_3 22,600, T = ?$

$$I = A - P = 22,600 - 10,000 = R_12600$$

$$T = \frac{I \times 100}{P \times R} = \frac{12600 \times 100}{18 \times 10000} = \underline{7 \text{ yrs.}}$$

5. $A = R_3 31,200, R = 4\%, T = 5 \text{ yrs. } P = ?$

$$A = P + I$$

$$31200 = P + \frac{PRT}{100} = P \left[1 + \frac{RT}{100} \right] = P \left[1 + \frac{4 \times 5}{100} \right]$$

$$31200 = P \left[\frac{100 + 20}{100} \right] = \frac{120P}{100} \quad \left| \quad P = \frac{31200 \times 100}{120} = \underline{R_26000} \right.$$

Chapter 16. Perimeter and Area.

Notes:

Perimeter of a Rectangle with length 'l' and breadth 'b'

$$P = 2(l+b)$$

$$\text{Area} = l \times b$$

$$\text{length } l = \frac{P}{2} - b$$

$$\text{breadth } b = \frac{P}{2} - l$$

$$l = \frac{A}{b}, \quad b = \frac{A}{l}$$

Perimeter of Square of side 'a' $P = 4a$.

$$\text{Side 'a'} = P/4$$

Area of Square = Side \times Side

Exercise 16:1

1. a. $l = 15\text{cm}$, $b = 8\text{cm}$. $P = 2(l+b)$

$$= 2(15+8) = 2 \times 23 = \underline{46\text{cm}}$$

2. a) $l = 16\text{cm}$, $b = 12\text{cm}$. $A = l \times b$

$$= 16 \times 12$$

$$= \underline{192\text{cm}^2}$$

3. Perimeter of Square = 52cm .

$$\text{Side of Square} = \frac{P}{4} = \frac{52}{4} = 13\text{cm}$$

$$\text{Area of Square} = 13 \times 13 = \underline{169\text{cm}^2}$$

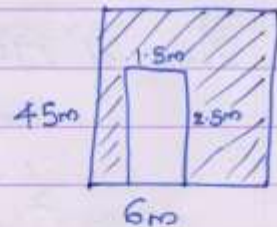
10. Area of Wall to be white washed

$$= \text{Area of Wall} - \text{Area of door}$$

$$= 4.5 \times 6 - 2.5 \times 1.5$$

$$= 27 - 3.75$$

$$= \underline{23.25\text{m}^2}$$



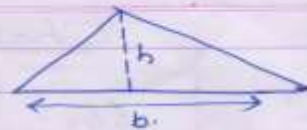
$$\text{Cost of White Washing Wall @ Rs } 30/\text{sq. m}^2 = 23.25 \times 30$$

$$= \underline{\underline{\text{Rs } 697.50}}$$

Notes:

Area of Triangle with base 'b' and altitude towards corresponding base.

$$A = \frac{1}{2} bh.$$

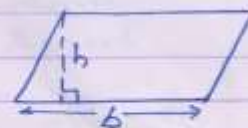


$$b = \frac{2A}{h}, \quad h = \frac{2A}{b}.$$

Area of Parallelogram with base 'b' and distance between two parallel sides

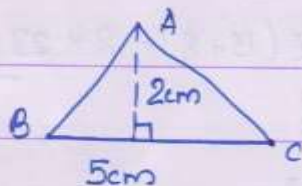
$$A = bh.$$

$$b = \frac{A}{h}, \quad h = \frac{A}{b}.$$



Exercise 16:2.

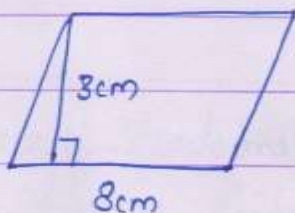
1. Find the area.



$$\begin{aligned} A &= \frac{1}{2} bh \\ &= \frac{1}{2} \times 5 \times 2 \\ &= \underline{\underline{5\text{cm}^2}} \end{aligned}$$

$$\begin{aligned} b &= 5\text{cm} \\ h &= 2\text{cm} \end{aligned}$$

2.

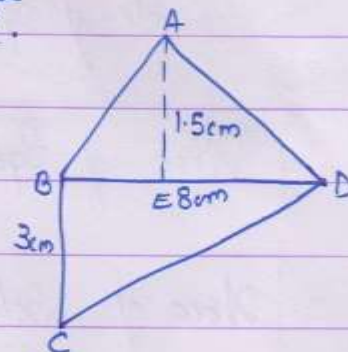


$$b = 8\text{cm}, \quad h = 3\text{cm}$$

$$A = bh = \underline{\underline{8 \times 3 = 24\text{cm}^2}}$$

8. Area of $\square ABCD$.

$$\begin{aligned} &= \text{ar. of } \triangle ABD + \text{Ar. of } \triangle BCD \\ &= \frac{1}{2} \times BD \times AE + \frac{1}{2} \times BD \times BC \\ &= \frac{1}{2} \times 8 \times 1.5 + \frac{1}{2} \times 8 \times 3 \\ &= \underline{\underline{6 + 12 = 18\text{cm}^2}} \end{aligned}$$



Notes:

Circle with radius 'r'
Circumference = $2\pi r$, $r = \frac{C}{2\pi}$
Area of Circle = πr^2



Exercise 16:3

1. $r = 7\text{cm}$.

$$C = 2\pi r, \quad 2 \times \frac{22}{7} \times 7 = \underline{44\text{cm}}$$

2. $r = 28\text{cm}$.

$$A = \pi r^2 = \frac{22}{7} \times 28 \times 28 = \underline{2464\text{cm}^2}$$

5. $A = 13.86\text{m}^2$.

$$\pi r^2 = 13.86 \Rightarrow r^2 = \frac{13.86}{\pi} = \frac{13.86 \times 7}{22} = 4.41$$

$$r = 2.1\text{m}$$

$$C = 2\pi r = 2 \times \frac{22}{7} \times 2.1 = \underline{13.2\text{m}}$$

10. No. of rotation to cover distance $264\text{m} = \frac{264}{\text{Circumference}}$

$$= \frac{264}{2 \times \frac{22}{7} \times \frac{56}{100}} = \frac{264 \times 7 \times 100}{2 \times 22 \times 56} = \underline{75\text{times}}$$

11. $r = 20\text{cm}$.

$$\text{Area to be polished} = \pi r^2 = 3.14 \times \frac{20 \times 20}{100} \times 12$$

Area of Cost of polishing 12 plates @ Rs 450/m²

$$= 3.14 \times \frac{20}{100} \times \frac{20}{100} \times 12 \times 450$$

$$= \underline{\text{Rs } 678.24}$$

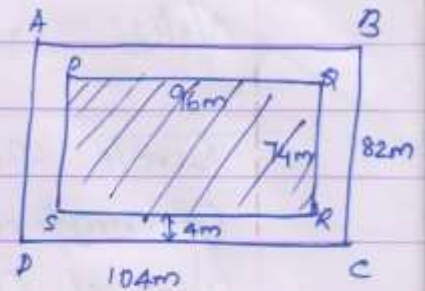
Exercise 16:4

3. Area of Path = Area of ABCD - Area of PQRS

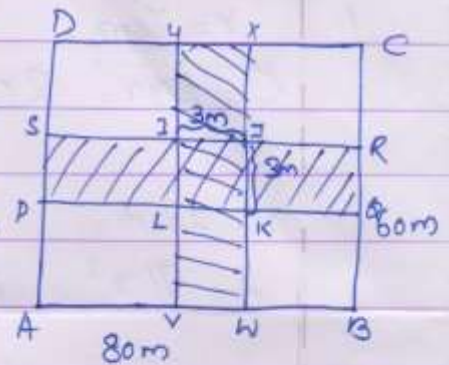
$$= 104 \times 82 - 96 \times 74$$

$$= 8528 - 7104$$

$$= \underline{\underline{1424 \text{ m}^2}}$$



Q.6 Area of Path = Area of PQRS + Area of UVWX - Area of IJKL



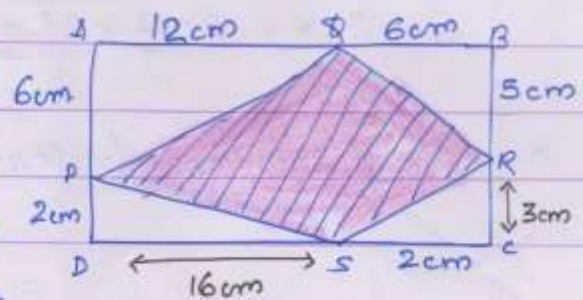
$$= 80 \times 3 + 60 \times 3 - 3 \times 3$$

$$= 240 + 180 - 9 = \underline{\underline{411 \text{ m}^2}}$$

10.

c) Area of Shaded Region

$$= \text{Area of Rectangle ABCD} - [\text{Ar. of } \triangle APS + \text{Ar. of } \triangle BQR + \text{Ar. of } \triangle RCS + \text{Ar. of } \triangle PDS]$$



$$= 18 \times 8 - \left[\frac{1}{2} \times 6 \times 12 + \frac{1}{2} \times 6 \times 5 + \frac{1}{2} \times 2 \times 3 + \frac{1}{2} \times 2 \times 16 \right]$$

$$= 144 - [36 + 15 + 3 + 16] = \underline{\underline{74 \text{ cm}^2}}$$

Chapter 17. Data Handling

Arithmetic Mean: $\frac{\text{Sum of observations}}{\text{No. of observations}}$

Range = Highest Value - Lowest Value.

Mode = Most frequently occurred observation

Median Middlemost observation

Exercise 17:1

Q2. Mean = $\frac{\text{Sum of observation}}{\text{No. of observation}} = \frac{15+12+8+7+10+6+9+4+5+10}{10}$
 $= \frac{86}{10} = 8.6$

Range = Highest Value - Lowest Value. = $15 - 4 = 11$.

Exercise 17:2

Q1. 525, 550, 750, 775, 650, 525, 600, 550, 525, 700, 625
Mode = Rs 525.

Median 525, 525, 520, 550, 550, 600, 625, 650, 700, 750
= Rs 600 775

Q7. The no.s ... Find the mode of the values

3, 4, 6, 5, 5, 1, 2, 2, 5, 1.

Mode: 5.

Ex 17.3

Q3. Draw a double bar graph.....

Words.	No. of Vowels	No. of Consonants
Exercise	4	4
Population	5	5
Examination	6	5
Probability	4	7

