

Class: VII E-M.

Sub: Mathematics

①

$$-5(y-2) = 15$$

$$-5y - 5(-2) = 15$$

$$-5y + 10 = 15$$

$$-5y = 15 - 10$$

$$y = \frac{5}{-5} = -1$$

②

$$\text{Starting temperature} = 12^{\circ}\text{C}$$

$$\text{Dropped} = -3^{\circ}\text{C}$$

$$\text{Total drop} = 12 - (-3) = 12 + 3 = 15^{\circ}\text{C}$$

③

Let the number be x

$$\text{Half of it} = \frac{x}{2}$$

$$\text{Two thirds} = \frac{2}{3}x$$

$$\text{Their sum} = 14$$

$$\frac{x}{2} + \frac{2}{3}x = 14$$

$$\frac{3x + 4x}{6} = 14$$

$$\frac{7x}{6} = 14$$

$$x = 14 \times \frac{6}{7}$$

$$x = 12$$

④

$$\text{Speed of a car} = \frac{1\frac{3}{4} \text{ kmph}}{\frac{1}{4}} = \frac{1 + \frac{3}{4}}{\frac{1}{4}} = \frac{\frac{7}{4}}{\frac{1}{4}} = 7 \text{ kmph}$$

$$\text{Distance in 12 km} = 12 \times \frac{7}{4} = 3 \times 7 = 21 \text{ km}$$

⑤

$$\text{Total Pages} = 240$$

$$\text{Read} = \frac{2}{5} \times 240 = \frac{480}{5} = 48 \times 2 = 96$$

$$\text{Left to read} = 240 - 96 = 144 \text{ pages}$$

⑥

$$\text{C.P} = ₹ 15,00,000$$

$$\text{S.P} = ₹ 12,00,000$$

$$\text{Loss} = \text{C.P} - \text{S.P} = 15,00,000 - 12,00,000 = 3,00,000$$

$$\% \text{ decrease} = \frac{3,00,000}{15,00,000} \times 100 = 20\%$$

P. Narayana Reddy
SAC (P.S)ZPHS, Karlapatta
Sankarapuram (M)

Chittoor.

9440711784

9502766455

③ Altitude is always the shortest distance from P to line QR

⑧ Total dolls = $\frac{3}{4} M$

If it is divided into 12 equal boxes = $\frac{\frac{3}{4}}{12}$
 $= \frac{3}{4} \times \frac{1}{12} = \frac{1}{16} M$

⑨ ± 8 and 50 pairs = 8.5

⑩ Mode.

⑪ 2cm, 4cm, 6cm.
 $2+4 = 6$

⑫ 4, 8, 12, —, —
 Mean of 5 numbers = 15
 Mode = 8
 If mode 8, then one number must be 8.
 $\therefore \text{Mean} = \frac{4+8+12+8+x}{5} = 15$

$32+x = 15 \times 5$

$32+x = 75$

$x = 75 - 32 = 43$

other two numbers may be 43, 8.

⑬ In ΔABC , $\angle A = 50^\circ$, then B and C are complementary angles.

⑭ $2.001 \div 0.003$

$= \frac{2.001}{0.003} = \frac{2001}{3} = 667$

⑮

75% loan money = £450

Total amount = $450 \times \frac{100}{75}$

$= 150 \times 4 = £600$

⑯

$P = ₹ 10,000$

$A = ₹ 14,000$

$I = A - P = 14,000 - 10,000 = ₹ 4,000$

$T = 5 \text{ years}$

$$R = \frac{100 \Omega}{P_T} = \frac{100 \times 4000}{10000 \times 8} = 8\%$$

(17) 1 kg Potatoes = Rs 13.5
 4 kg = $4 \times 13.5 \times 4 = 540 = \text{Rs } 54$

(18) First test = 72
 Second test = 81
 Increase = $81 - 72 = 9$
 $\% \text{ of Increase} = \frac{9}{72} \times 100 = \frac{25}{2} = 12\frac{1}{2} = 12.5\%$

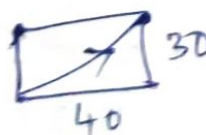
(19) 20% of $x = 300$
 $20 \times \frac{x}{100} = 300$
 $x = 300 \times \frac{100}{20} = 1500$

(20) Obtuse angled triangle.

(21) Total water = 15 litres.
 Vidya drink = $\frac{2}{5}$ = $\frac{2}{5}$ litre
 $= 15 \times \frac{2}{5} = 3 \times 2 = 6 \text{ litres.}$

Prakash drink = $\frac{3}{5}$ parts.

- (22) (a) Parallel lines
 (b) Perpendicular lines.

(22) 
 (Length of diagonal) = $\sqrt{40^2 + 30^2}$
 $= 1600 + 900$
 $= 2500$
 (Length of diagonal) = $(50)^2$

Diagonally he walked 50 mts. only.
 So he walked 20 mts less.

(24) 32, 41, 28, 54, 35, 26, 23, 33, 38, 40

a) Range = $54 - 23 = 31$

(b) Average = $\frac{32 + 41 + 28 + 54 + 35 + 26 + 23 + 33 + 38 + 40}{10}$

$= \frac{350}{10} = 35$

(25)

for every correct answer = +3

for every wrong answer = -2

(a) for 12 correct answers = $12 \times 3 = 36$

But she scored = 20

$\therefore$ Let no. of wrongs be x

Hence, Redhika's score = $-2x + 36 = 20$

$-2x = 20 - 36$

$-2x = -16$

$x = \frac{-16}{-2} = 8$

Redhika's wrong answers = 8.

(b) Mohini's score = -5

Correct answers = ~~17~~

Marks = ~~17~~ $\times 3 = 21$

Let wrong answers be x

So Marks = $-2 \times x$

$\therefore -2x + 21 = -5$

$-2x = -5 - 21$

$-2x = -26$

$x = \frac{-26}{-2} = 13$

Mohini's wrong answers = 13

(26)

Let the numbers be x

$\frac{5}{2}$ of the number = $\frac{5}{2}x$

Takes 7 from it gives 23

$$\frac{5}{2}x - 7 = 23$$

$$\frac{5}{2}x = 23 + 7$$

$$x = \frac{30 \times 2}{5}$$

$$x = 6 \times 2 = 12$$

Required number = 12

(27) Total voters = 15,000
Voted = 60%.

(a) Who did not vote = $100 - 60 = 40\%$

(b) Voters not voted = $15000 \times \frac{40}{100}$
 $= 150 \times 40 = 6000$

(c) Voted to party A = 20%.

Number of voters = $15000 \times \frac{20}{100}$
 $= 150 \times 20 = 3000$

(28) Cake weight = $2 \frac{1}{4}$ kg. = $\frac{9}{4}$ kg

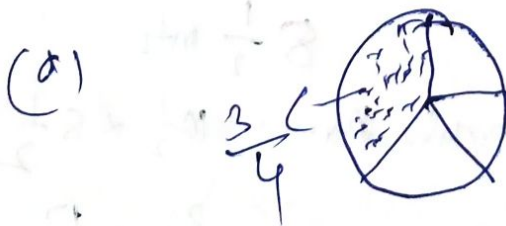
(a) Joseph eat = $\frac{1}{3}$ part

$= \frac{9}{4} \times \frac{1}{3} = \frac{9 \times 1}{4 \times 3} = \frac{3}{4}$ kg.

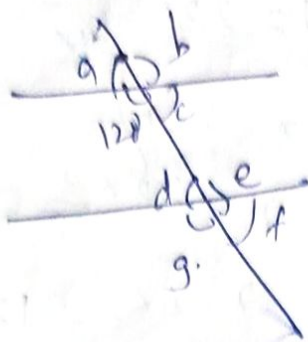
(b) Share to his friends = $\frac{9}{4} - \frac{3}{4}$

$= \frac{9-3}{4} = \frac{6}{4} = \frac{3}{2}$ kg

(c) Share of each = $\frac{3/2}{3} = \frac{3}{2} \times \frac{1}{3} = \frac{1}{2}$ kg.



25



$$g + 120 = 180$$

$$a = 180 - 120 = 60$$

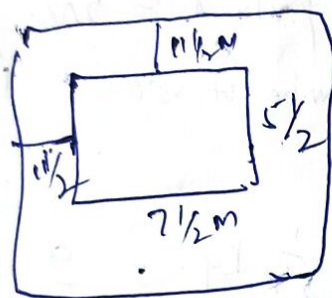
$$a = c = 60 \quad [\text{Alternate opposite angles are equal}]$$

$$b = 120$$

$$a = d = 60 = f$$

$$g = e = 120$$

3



Rectangular garden measurement = $7\frac{1}{2} \times 5\frac{1}{2} \text{ m}$

$$\text{Its Area} = 7\frac{1}{2} \times 5\frac{1}{2}$$

$$= \frac{15}{2} \times \frac{11}{2} = \frac{165}{4} \text{ sq m}$$

$$\text{Width of Path} = 1\frac{1}{2} \text{ m}$$

$$\text{Outer Rectangle measurement} = 7\frac{1}{2} + 1\frac{1}{2} + 1\frac{1}{2}$$

$$= 10\frac{1}{2} \text{ m}$$

$$\text{width} = 5\frac{1}{2} + 1\frac{1}{2} + 1\frac{1}{2}$$

$$= 8\frac{1}{2} \text{ m}$$

$$\text{Outer rectangular Area} = 10\frac{1}{2} \times 8\frac{1}{2}$$

$$= \frac{21}{2} \times \frac{17}{2} = \frac{357}{4} \text{ sq m}$$

Area

(11) Measurement of wall = $3\frac{1}{2} \text{ m} \times 4\frac{1}{2} \text{ m}$

Its Area = $\frac{11}{3} \times \frac{9}{2} = \frac{33}{2}$

Wall paper measurement = $4 \text{ m} \times 5\frac{1}{2} \text{ m}$

Its area = $4 \times \frac{11}{2} = 22 \text{ m}^2$

Used paper = $\frac{22}{\frac{33}{2}} = 2 \times \frac{2}{\frac{3}{2}} = \frac{4}{3} = 3\frac{1}{3} \text{ part}$

(b) (i) Let Raju's age = x

Three times = $3x$

5 years more than is equal to 44 years.

$3x + 5 = 44$

$3x = 44 - 5$

$x = \frac{39}{3} = 13 \text{ years}$

(ii) Let the breadth be = $x \text{ m}$

Length = 8 m more to its breadth
= $x + 8$

Perimeter of rectangle = 64

$2[l + b] = 64$

$2[x + 8 + x] = 64$

$2x + 8 = \frac{64}{2} = 32$

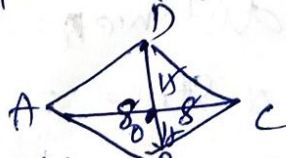
$2x = 32 - 8$

$x = \frac{24}{2} = 12 \text{ m}$

Breadth = 12 m

Length = $x + 8 = 12 + 8 = 20$

(31)



Diagonal of Rhombus = 16 cm & 30 cm

Rhombus diagonals bisect each other.

$AO = OC = \frac{16}{2} = 8 \text{ cm}$

$BO = OD = \frac{30}{2} = 15 \text{ cm}$

$$AD^2 = AB^2 + BD^2$$

$$= (8)^2 + (15)^2$$

$$= 64 + 225$$

$$\frac{17 \times 17}{9}$$

$$AD^2 = 289$$

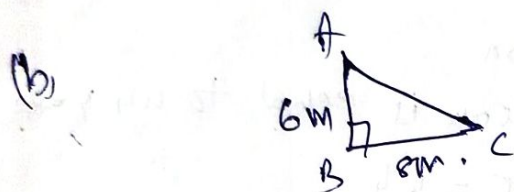
$$AD = (17)^2$$

$$AD = 17 \text{ m}$$

(i) Each side of Rhombus = 17 m

(ii) Perimeter of Rhombus = $4 \times \text{side}$

$$= 4 \times 17 = 68 \text{ m}$$



Let AB = Standing pole after break = 6 m

BC = Broken part touches the ground = 8 m

In ABC right triangle

$$AC^2 = AB^2 + BC^2$$

$$= 6^2 + 8^2$$

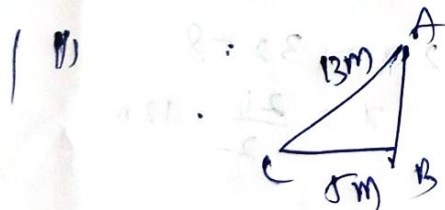
$$= 36 + 64 = 100$$

$$AC^2 = (10)^2$$

$$AC = 10 \text{ m}$$

$\therefore$ Original Height of the pole = BA + AC

$$= 6 + 10 = 16 \text{ m}$$



Horizontal distance = 5 m

AC = Distance of string = 13 m

AB = Height of the kite = ?

In $\triangle ABC$ $AC^2 = AB^2 + BC^2$

$$13^2 = 5^2 + AB^2$$

$$169 = 25 + AB^2$$

$$169 - 25 = AB^2$$

$$AB^2 = 144$$

$$AB = (12)^2$$

$$AB = 12 \text{ m}$$

Height of the kite = 12 m.

(3) Cost price of mobile = ₹ 21,000.

Loss = 12%.

(i)

$$= 21,000 \times \frac{12}{100}$$

$$S.P = C.P - \text{Loss} = ₹ 2520$$

$$\text{Selling price} = 21,000 - 2520$$

$$= ₹ 18480$$

$$\begin{array}{r} 21000 \\ - 2520 \\ \hline 18480 \end{array}$$

(ii) If gain profit is 10%.

$$\text{Gain profit} = 21,000 \times \frac{10}{100}$$

$$S.P = C.P + \text{Profit} = ₹ 2100$$

$$\text{Selling price} = 21000 + 2100$$

$$= ₹ 23,100$$

$$\begin{array}{r} 21000 \\ + 2100 \\ \hline 23100 \end{array}$$

(b) (i) Each pen costs = ₹ 10

$$\text{Cost of 50 pens} = 50 \times 10 = ₹ 500$$

$$\text{Selling price of each} = ₹ 12$$

$$50 = 12 \times 50 = ₹ 600$$

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

$$= 600 - 500 = ₹ 100$$

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

$$= \frac{100}{500} \times 100 = 20$$

(ii) Cost of each notebook = ₹ 25

$$\text{Cost of 20 Notebooks} = ₹ 25 \times 20 = ₹ 500$$

Selling price of each note = ₹ 22

$$\begin{aligned} 20 \text{ notes} &= ₹ 22 \times 20 \\ &= ₹ 440 \end{aligned}$$

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

$$= 500 - 440 = ₹ 60$$

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

$$= \frac{60}{500} \times 100 = 12\%$$

83

P. Narayana Reddy
SACPS
ZPHS, Karlapatta
Sankipuram (M)
Chittoor (Dt)
A.P.

(i) Scale: X axis - students and months

Y axis: unit = 5 days

(ii) Asha showed highest improvement in attendance from August to September

(iii) Neelima Attendance decreased from August to September

(iv) Iqbal have lowest attendance in both months

$$\text{v) Range in August} = 24 - 10 = 14$$

(b)

(i) x axis - Sport.

y axis - Watching & Participating

1 unit = 100

(ii) We can get data how many were interested in watching which sport and how many were participate in each game.

(iii) Most popular is cricket.

(iv) Cricket.

(v) Athletics.