

Chapter 8 Linear equations in one variable

8. Linear Equations in one Variable

✓

1

Solution -1:-

8.1.

$$(i) \quad 3(4) - 5 = 7$$

$$LHS = RHS$$

$$(ii) \quad 5 + 3(3) = 14$$

$$14 = 14$$

$$LHS = RHS$$

$$(iii) \quad x = 2$$

$$3x - 2 = 8x - 12$$

$$3(2) - 2 = 8(2) - 12$$

$$6 - 2 = 16 - 12$$

$$4 = 4$$

$$LHS = RHS.$$

$$(iv) \quad x = 4$$

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

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

$$LHS = RHS$$

$$(v) \quad y - 3 = 2y - 5$$

$$\Rightarrow 2 - 3 = 2(2) - 5 \Rightarrow -1 = -1$$

$$LHS = RHS$$

$$(vi) \quad \frac{1}{2}(8) + 7 = \frac{8}{2} + 7 = 4 + 7 = 11 = RHS.$$

Solution -02:-

$$(i) x + 3 = 12$$

$$x = 12 - 3$$

$$x = 9$$

$$(ii) x - 7 = 10$$

$$x = 10 + 7$$

$$x = 17$$

$$(iii) 4x = 28$$

$$x = \frac{28}{4}$$

$$x = 7$$

$$(iv) \frac{x}{2} + 7 = 11$$

$$x + 14 = 22$$

$$x = 22 - 14$$

$$x = 8$$

$$(v) 2x + 4 = 3x$$

$$3x - 2x = 4$$

$$x = 4$$

$$(V) \frac{x}{4} = 12$$

$$x = 12 \times 4$$

$$x = 48$$

$$(VI) \frac{15}{x} = 3$$

$$x = \frac{15}{3}$$

$$= 5$$

$$(VII) \frac{x}{18} = 20$$

$$x = 18 \times 20$$

$$x = 360.$$

Exercise - 8.2

Solution - 01

1. $x - 3 = 5$

$$x = 5 + 3$$

$$x = 8.$$

2. $x + 9 = 13$

$$x = 13 - 9$$

$$x = 4$$

3. $x - \frac{3}{5} = \frac{7}{5}$

In order to solve this equation, we have to get x by itself on the L.H.S. To get x by itself on the L.H.S., we need to shift $-\frac{3}{5}$. This can be done by adding $\frac{3}{5}$ to both sides of the given equation

$$\Rightarrow x - \frac{3}{5} + \frac{3}{5} = \frac{7}{5} + \frac{3}{5}$$

$$\Rightarrow x = \frac{7+3}{5}$$

$$\Rightarrow x = \frac{10}{5}$$

Solution - 04

$$3x = 0$$

$$\Rightarrow x = \frac{0}{3}$$

$$\Rightarrow x = 0$$

Solution - 05:

$$\Rightarrow \frac{x}{2} = 0$$

$$\Rightarrow x = 2 \times 0$$

$$\Rightarrow x = 0$$

Solution - 06:

$$\Rightarrow x - \frac{1}{3} = \frac{2}{3}$$

$$\Rightarrow x - \frac{1}{3} + \frac{1}{3} = \frac{2}{3} + \frac{1}{3}$$

$$\Rightarrow x = \frac{1+2}{3} = \frac{3}{3}$$

$$\Rightarrow x = 1$$

Solution - 07

$$\Rightarrow x + \frac{1}{2} - \frac{1}{2} = \frac{7}{2} - \frac{1}{2}$$

$$\Rightarrow x = \frac{7-1}{2} = \frac{6}{2}$$

$$\Rightarrow x = 3$$

Solution -8

$$10 - y = 6$$

$$y = 10 - 6$$

$$\Rightarrow y = 4$$

Solution -09:-

$$7 + 4y = -5$$

$$\Rightarrow 7 + 4y - 7 = -5 - 7$$

$$\Rightarrow 4y = -12$$

$$\Rightarrow \frac{4y}{4} = \frac{-12}{4}$$

$$\Rightarrow y = -3$$

Solution -10:-

$$\frac{4}{5} - x = \frac{3}{5}$$

$$\frac{4 - 5x}{5} = \frac{3}{5}$$

$$\Rightarrow 4 - 5x = 3$$

$$\Rightarrow 4 - 5x - 4 = 3 - 4$$

$$\Rightarrow -5x = -1$$

$$\Rightarrow x = \frac{1}{5}$$

Solution - 11.

$$2y - \frac{1}{2} = -\frac{1}{3}$$

$$\Rightarrow 2y - \frac{1}{2} + \frac{1}{2} = -\frac{1}{3} + \frac{1}{2}$$

$$\Rightarrow 2y = \frac{3-2}{6}$$

$$\Rightarrow 2y = \frac{1}{6}$$

$$\Rightarrow y = \frac{1}{6 \times 2}$$

$$\Rightarrow y = \frac{1}{12}$$

[By cross multiplication]

Solution - 12:-

$$14 = \frac{7x}{10} - 8$$

$$\Rightarrow 14 + 8 = \frac{7x}{10} - 8 + 8$$

$$\Rightarrow 22 = \frac{7x}{10}$$

$$\Rightarrow 7x = 22 \times 10 \quad [\text{By cross cross multiplication}]$$

$$\Rightarrow 7x = 220$$

$$\Rightarrow x = \frac{220}{7}$$

Solution -13.

$$3(x+2) = 15$$

$$\Rightarrow 3x + 6 = 15$$

$$\Rightarrow 3x = 15 - 6$$

$$\Rightarrow 3x = 9$$

$$\Rightarrow x = \frac{9}{3}$$

$$\Rightarrow x = 3$$

Solution -14:-

$$\Rightarrow \frac{x}{4} = \frac{7}{8}$$

$$\Rightarrow 8x = 28$$

$$\Rightarrow x = \frac{28}{8}$$

$$\Rightarrow x = \frac{7}{2}$$

Solution -15:-

$$\frac{1}{3} - 2x = 0$$

$$\frac{1}{3} - 2x + 2x = 2x$$

$$\frac{1}{3} = 2x$$

$$\Rightarrow x = \frac{1}{6}$$

Solution -16:-

$$3(x+6) = 24$$

$$\Rightarrow 3x + 18 = 24$$

$$\Rightarrow 3x = 24 - 18$$

$$\Rightarrow 3x = 6$$

$$\Rightarrow x = \frac{6}{3}$$

$$\Rightarrow x = 2$$

Solution -17:-

$$3(x+2) - 2(x-1) = 7$$

$$3x + 6 - 2x + 2 = 7$$

$$x + 8 = 7$$

$$x = 7 - 8$$

$$x = -1$$

Solution -18:-

$$8(2x-5) - 6(3x-7) = 1$$

$$16x - 40 - 18x + 42 = 1$$

$$-2x + 2 = 1$$

$$2x = 2 - 1$$

$$\Rightarrow x = \frac{1}{2}$$

Solution - 19:-

$$6(1-4x) + 7(2+5x) = 53$$

$$\Rightarrow 6 - 24x + 14 + 35x = 53$$

$$\Rightarrow 11x + 20 = 53$$

$$\Rightarrow 11x = 53 - 20$$

$$\Rightarrow 11x = 33$$

$$\Rightarrow x = \frac{33}{11}$$

$$\Rightarrow x = 3$$

Solution - 20:-

$$5(2-3x) - 17(2x-5) = 16$$

$$\Rightarrow 10 - 15x - 34x + 85 = 16$$

$$\Rightarrow 10 - 49x + 85 = 16$$

$$\Rightarrow 95 - 16 = 49x$$

$$\Rightarrow 49x = 79$$

$$\Rightarrow x = \frac{79}{49}$$

Solution - 21:-

$$\frac{x-3}{5} - 2 = -1$$

$$\Rightarrow x-3-10 = -5$$

$$\Rightarrow x-13 = -5$$

$$\Rightarrow x = 13-5$$

$$\Rightarrow \boxed{x = 8}$$

Solution - 22:-

$$5(x-2) + 3(x+1) = 25$$

$$\Rightarrow 5x-10+3x+3 = 25$$

$$\Rightarrow 8x-7 = 25$$

$$\Rightarrow 8x = 32$$

$$\Rightarrow x = \frac{32}{8}$$

$$\Rightarrow \boxed{x = 4}$$

Exercise - 8.3.

12

Solution - 01:-

$$\Rightarrow 6x + 5 = 2x + 17$$

$$\Rightarrow 6x - 2x + 5 = 2x + 17 - 2x \quad [\text{Subtract '2x' on both sides}]$$

$$\Rightarrow 4x + 5 = 17$$

$$\Rightarrow 4x + 5 - 5 = 17 - 5 \quad [\text{Subtract '5' on both sides}]$$

$$\Rightarrow 4x = 12$$

$$\Rightarrow \frac{4x}{4} = \frac{12}{4} \quad [\text{Divide by '4' on both sides}]$$

$$\Rightarrow x = 3.$$

Verification:-

$$\Rightarrow 6(3) + 5 = 2(3) + 17 \quad [\text{Substitute } x = 3]$$

$$\Rightarrow 23 = 23.$$

$$\therefore \text{LHS} = \text{RHS}$$

Solution - 02

$$2(5x - 3) - 3(2x - 1) = 9$$

$$10x - 6 - 6x + 3 = 9$$

$$4x - 3 = 9$$

$$4x = 9 + 3$$

$$4x = 12$$

$$\frac{4x}{4} = \frac{12}{4} \quad [\text{Divide by '4' on both sides}]$$

$$x = 3.$$

Verification:

$$2(5(3) - 3) - 3(2(3) - 1) = 9$$

$$2(12) - 3(5) = 9$$

$$9 = 9$$

$$\therefore \text{LHS} = \text{RHS}.$$

$$3 \cdot \frac{x}{2} = \frac{x}{3} + 1$$

$$\Rightarrow \frac{x}{2} = \frac{x}{3} + 1$$

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

By cross multiplication we get.

$$\Rightarrow 3x = 2(x+3)$$

$$\Rightarrow 3x = 2x + 6$$

subtract '2x' on both sides

$$\Rightarrow x = 6$$

Verification:-

$$\Rightarrow \frac{6}{2} = \frac{6}{3} + 1 \Rightarrow 3 = 3$$

$$4. \frac{x}{2} + \frac{3}{2} = \frac{2x}{5} - 1$$

$$\frac{x+3}{2} = \frac{2x-5}{5}$$

$$\Rightarrow 5(x+3) = 2(2x-5)$$

$$\Rightarrow 5x + 15 = 4x - 2 \times 5$$

$$\Rightarrow 5x - 4x + 15 = 4x - 2 \times 5 - 4x \quad [\text{subtract } 4x \text{ on both sides}]$$

$$\Rightarrow x + 15 = -2 \times 5$$

$$\Rightarrow x + 15 = -10$$

$$\Rightarrow x = -15 - 10$$

$$\Rightarrow x = -25$$

$$\text{Verification:- } -\frac{25}{2} + \frac{3}{2} = \frac{44}{5} - 1 - \frac{50}{5} - 1$$

$$-11 = -11$$

$$5. \frac{3}{4}(x-1) = (x-3)$$

19

$$\Rightarrow 3x - 3(1) = 4(x-3)$$

$$\Rightarrow 3x - 3 = 4x - 12$$

Adding '12' on both sides

$$3x - 3 + 12 = 4x - 12 + 12$$

$$\Rightarrow 3x + 9 = 4x$$

Adding Subtracting $3x$ on both sides

$$\Rightarrow 4x - 3x = 3x + 9 - 3x$$

$$\Rightarrow x = 9$$

Verification

$$\frac{3}{4}(9-1) = (9-3)$$

$$\frac{3}{4} \times 8 = 6$$

$$6 = 6$$

$$6. 3(x-3) = 5(2x+1)$$

$$3x - 9 = 5(2x) + 5$$

$$\Rightarrow 3x - 9 = 10x + 5$$

$$\Rightarrow 10x - 3x + 5 = 3x - 9 - 3x \quad [\text{subtracting } 3x \text{ on both sides}]$$

$$\Rightarrow 7x = -9 - 5$$

$$\Rightarrow 7x = -14$$

$$\Rightarrow \frac{7x}{7} = \frac{-14}{7}$$

$$\Rightarrow x = -2$$

Verification:

$$3(-2-3) = 5(2(-2)+1)$$

$$-15 = -15$$

$$7. 3x - 2(2x - 5) = 2(x + 3) - 8$$

$$\Rightarrow 3x - 2(2x - 5) = 2(x + 3) - 8$$

$$\Rightarrow 3x - 4x + 10 = 2x + 6 - 8$$

$$\Rightarrow -x + 10 = 2x - 2$$

$$\Rightarrow -x + x + 10 = 2x + x - 2$$

$$\Rightarrow 10 + 2 = 3x - 2 + 2$$

$$\Rightarrow 3x = 12$$

$$\Rightarrow \frac{3x}{3} = \frac{12}{3}$$

$$\Rightarrow x = 4$$

Verification:-

$$3(4) - 2(2(4) - 5) = 2(4 + 3) - 8$$

$$\Rightarrow 12 - 2[3] = 2[7] - 8$$

$$\Rightarrow 6 = 6$$

$$8. x - \frac{x}{4} - \frac{1}{2} = 3 + \frac{x}{4}$$

$$\Rightarrow \frac{4x - x - 2}{4} = \frac{12 + x}{4}$$

$$\Rightarrow 4x - x - 2 = 12 + x$$

$$\Rightarrow 3x - 2 = 12 + x$$

$$\Rightarrow 3x - x = 12 + 2$$

$$\Rightarrow 2x = 14$$

$$\Rightarrow \frac{x}{2} \times 2 = \frac{14}{2}$$

$$\Rightarrow x = 7$$

Verification:-

$$7 - \frac{7}{4} - \frac{1}{2} = \frac{28 - 7 - 2}{4} = \frac{19}{4} = 3 + \frac{7}{4} = \frac{19}{4}$$

$$9. \frac{6x-2}{9} + \frac{3x+5}{18} = \frac{1}{3}$$

16

$$\Rightarrow \frac{(6x-2) \times 2}{9 \times 2} + \frac{3x+5}{18} = \frac{1}{3}$$

$$\Rightarrow \frac{12x-4+3x+5}{18} = \frac{1}{3}$$

$$\Rightarrow 15x+1 = \frac{18}{3} \quad [\text{By crossmultiplication}]$$

$$\Rightarrow 15x = 6-1$$

$$\Rightarrow 15x = 5$$

$$\Rightarrow \frac{15x}{15} = \frac{5}{15}$$

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

Verification:-

$$\frac{6 \times \frac{1}{3} - 2}{9} + \frac{3 \times \frac{1}{3} + 5}{18} = 0 + \frac{6}{18} = \frac{1}{3} = \text{RHS}$$

$$10. m - \frac{m-1}{2} = 1 - \frac{m-2}{3}$$

$$\Rightarrow \frac{m \times 2 - \frac{m-1}{2}}{2} = \frac{1 \times 3 - \frac{m-2}{3}}{3}$$

$$\Rightarrow \frac{2m-m+1}{2} = \frac{3-m+2}{3}$$

$$\Rightarrow 3(m+1) = 2(5-m)$$

$$\Rightarrow 3m+2m+3 = 10-2m+2m$$

$$\Rightarrow 5m = 10-3 = 7$$

$$\Rightarrow m = \frac{7}{5}$$

Verification:

$$\frac{7}{5} - \frac{\frac{7}{5}-1}{2} = \frac{7}{5} - \frac{2}{10} = \frac{14-2}{10} = \frac{6}{5} = \frac{3-\frac{7}{5}-2}{\frac{18}{5}} = \frac{6}{5}$$

$$11. \frac{5x-1}{3} - \frac{2x-2}{3} = 1$$

$$\Rightarrow \frac{5x-1-(2x-2)}{3} = 1$$

$$\Rightarrow 5x-1-2x+2 = 3$$

$$\Rightarrow 3x+1 = 3$$

$$\Rightarrow 3x+1-1 = 3-1$$

$$\Rightarrow 3x = 2$$

$$\Rightarrow \frac{3x}{3} = \frac{2}{3}$$

$$\Rightarrow x = \frac{2}{3}$$

Verification:

$$\frac{5 \times \frac{2}{3} - 1}{3} - \frac{2 \times \frac{2}{3} - 2}{3} = \frac{\frac{10}{3} - 1}{3} = \frac{\frac{10}{3} - \frac{3}{3}}{3} = \frac{\frac{7}{3}}{3} = \frac{7}{9} \neq 1$$

= R.H.S.

$$12. 0.6x + \frac{4}{5} = 0.28x + 1.16$$

$$\Rightarrow \frac{0.6x(5)}{5} + \frac{4}{5} = 0.28x + 1.16$$

$$\Rightarrow 3x + 4 = 1.4x + 5.80$$

$$\Rightarrow 3x - 1.4x = 5.80 - 4$$

$$\Rightarrow 1.6x = 1.8 \Rightarrow x = \frac{1.8}{1.6}$$

$$\Rightarrow x = \frac{9}{8}$$

Verification:-

18

$$\begin{aligned} \text{LHS} &= 0.6 \times \frac{9}{8} + \frac{4}{5} = \frac{5.4}{8} + \frac{4}{5} = \frac{5.4(5)}{40} + \frac{32}{40} \\ &= \frac{27+32}{40} = \frac{59}{40} \\ &= 1.475 \end{aligned}$$

$$\begin{aligned} \text{RHS} &= 0.28 \times \frac{9}{8} + 1.16 = \frac{28}{100} \times \frac{9}{8} + 1.16 \\ &= 1.475 \end{aligned}$$

$$\therefore \text{LHS} = \text{RHS}$$

Solution-13:-

$$\Rightarrow 0.5x + \frac{x}{3} = 0.25x + 7$$

$$\Rightarrow \frac{1.5x + x}{3} = 0.25x + 7$$

$$\Rightarrow 2.5x - 0.75x = 21$$

$$\Rightarrow 1.75x = 21$$

$$\Rightarrow x = 12$$

Verification:-

$$\Rightarrow 0.5 \times 12 + \frac{12}{3} = 6 + 4 = 10$$

$$\text{LHS} = 10$$

$$\text{RHS} = 0.25 \times 12 + 7 = 3 + 7 = 10$$

$$\text{LHS} = \text{RHS}$$

Exercise-8.4.

19

Solution-01:-

Let 'x' be the given number

3 times of the number = $3x$.

if 5 subtracted from the given three times

a number $\rightarrow 16$

$$\Rightarrow 3x - 5 = 16$$

$$\Rightarrow 3x - 5 = 16$$

$$\Rightarrow 3x - 5 + 5 = 16 + 5$$

$$\Rightarrow 3x = 21$$

$$\Rightarrow \frac{x}{3} \times 3 = \frac{21}{3}$$

$$\Rightarrow x = 7.$$

required number is '7'.

Solution-02:-

Let the number be 'x'

when multiplied by 7 it becomes $\rightarrow 7x$

$$\Rightarrow 7x = x + 78$$

$$\Rightarrow 7x - x = x + 78 - x$$

$$\Rightarrow 6x = 78$$

$$\Rightarrow \frac{6x}{6} = \frac{78}{6}$$

$$\Rightarrow x = 13.$$

required number is '13'.

Solution-03:-

20

Let three consecutive numbers be $x, x+1$ and $x+2$.

Given that

$$\Rightarrow x + x + 1 = 15 + 2 + x$$

$$\Rightarrow 2x + 1 = 17 + x$$

$$\Rightarrow 2x + 1 - x = 17 + x - x$$

$$\Rightarrow x + 1 = 17$$

$$\Rightarrow x + 1 - 1 = 17 - 1$$

$$\Rightarrow x = 16, x + 1 = 17, x + 2 = 18.$$

required numbers 16, 17, 18

Solution-04:-

Given that,

The difference between two numbers is 7.

$$x - y = 7 \rightarrow \textcircled{1}$$

Let the small number be 'y'

Let the larger number be 'x'

$$6y + x = 77 \rightarrow \textcircled{2}$$

$$x - y = 7$$

$$x = y + 7 \rightarrow \textcircled{3}$$

substituting $\textcircled{3}$ in $\textcircled{2}$ we get

$$\Rightarrow 6y + y + 7 = 77$$

$$\Rightarrow 7y + 7 = 77$$

$$\Rightarrow 7y + 7 - 7 = 77 - 7$$

$$\Rightarrow 7y = 70$$

$$\Rightarrow \frac{7y}{7} = \frac{70}{7}$$

$$\Rightarrow y = 10$$

$$x = 10 + 7 = 17$$

Required numbers 10, 17.

Solution-05:-

2)

Given that,

Let the required number be 'x', then

$$\Rightarrow \frac{x}{3} + 5 = 2x$$

$$\Rightarrow \frac{x+5(3)}{3} = 2x$$

$$\Rightarrow x+15 = 2x(3)$$

$$\Rightarrow 6x - x = x + 15 - x$$

$$\Rightarrow 5x = 15$$

$$\Rightarrow \frac{5x}{5} = \frac{15}{5}$$

$$\Rightarrow x = 3.$$

Solution-06:-

Let the required number be 'x'.

Given that,

$$\Rightarrow 3x+5 = 50$$

$$\Rightarrow 3x+5 = 50$$

$$\Rightarrow 3x+5-5 = 50-5$$

$$\Rightarrow 3x = 45$$

$$\Rightarrow \frac{3x}{3} = \frac{45}{3}$$

$$\Rightarrow x = 15$$

Required number be $x = 15$.

Solution-07:-

Let Shikha's age 'x' and Ravish age 'x+3'

Then. Given that

$$\Rightarrow x + x + 3 = 37$$

$$\Rightarrow 2x + 3 = 37$$

$$\Rightarrow 2x + 3 - 3 = 37 - 3$$

$$\Rightarrow 2x = 34$$

$$\Rightarrow \frac{2x}{2} = \frac{34}{2}$$

$$\Rightarrow x = 17$$

$\therefore$ Shikha : 17 years

Ravis = $x + 3$ years

$$= 17 + 3 \text{ years}$$

$$= 20 \text{ years}$$

Solution-08:-

Let Mrs Jain present age $x + 27$ and

Nilu present age x

After 8 years

$$\text{Mrs Jain Age} = x + 27 + 8 = x + 35$$

$$\text{Nilu age} = x + 8$$

Given that

$$\Rightarrow x + 35 = 2(x + 8)$$

$$\Rightarrow x + 35 = 2x + 16$$

$$\Rightarrow x + 35 - x = 2x + 16 - x$$

$$\Rightarrow x = 19$$

$\therefore$ Nilu : 19 years

$$\text{Mrs Jain age} = x + 27 = 19 + 27 = 46 \text{ years}$$

Solution-09:-

23

Let Man age be $4x$ and
his son age be x

After 16 years

Man age $\rightarrow 4x + 16$

his son age $\rightarrow x + 16$

Given that

$$(x+16)^2 = 4x+16$$

$$\Rightarrow 4x+16 = 2x+32$$

$$\Rightarrow 4x+16-2x = 2x+32-2x$$

$$\Rightarrow 2x+16 = 32$$

$$\Rightarrow 2x+16-16 = 32-16$$

$$\Rightarrow 2x = 16$$

$$\Rightarrow \frac{2x}{2} = \frac{16}{2}$$

$$\Rightarrow x = 8$$

$\therefore$ Son age = 8.

father age $= 4x = 4(8) = 32$ years

Solution-10:-

Let the Girl's Age be x and
younger sister age $x-4$,

her brother age be $x-4-4 = x-8$.

Given that

$$\Rightarrow x-4+x-8 = 16$$

$$\Rightarrow 2x-12 = 16$$

$$\Rightarrow 2x-12+12 = 16+12$$

$$\Rightarrow 2x = 28.$$

$$\Rightarrow 2x = 28$$

24

$$\Rightarrow \frac{2x}{2} = \frac{28}{2}$$

$$\Rightarrow x = 14$$

Girl - $x = 14$ years

Younger sister $\Rightarrow x - 4 = 14 - 4 = 10$ years

Brother $\rightarrow x - 8 = 14 - 8 = 6$ years

Solution - 11 :-

Given that.

Let Anita found 'x' shells then
Sandy found 'x-5' shells and
Shella found '2x' shells

Q11

$$\Rightarrow 2x + x - 5 = 16$$

$$\Rightarrow 3x - 5 + 5 = 16 + 5$$

$$\Rightarrow 3x = 16 + 5$$

$$\Rightarrow 3x = 21$$

$$\Rightarrow \frac{3x}{3} = \frac{21}{3}$$

$$\Rightarrow x = 7$$

Anita - 7

Sandy $\Rightarrow x - 5 = 7 - 5 = 2$

Shella $\rightarrow 2x = 2(7)$
 $= 14$

Let pandy has x marbles

Andy has $2x$ marbles

Sandy has $\frac{2x+x}{2}$ marbles

Given that

$$\Rightarrow \text{No. of marbles sandy has} = 110 + 115$$

[Andy] [more than
has Andy has]

$$\Rightarrow \frac{2x+x}{2} = 225$$

$$\Rightarrow 3x = 450$$

$$\Rightarrow \frac{3x}{3} = \frac{450}{3}$$

$$\Rightarrow x = 150$$

Andy has $\rightarrow 2x$ marbles $= 2(150)$

$= 300$ marbles

Sandy has $\rightarrow \frac{3x}{2}$ marbles $= \frac{3(150)}{2}$

$= 225$ marbles

Solution-13:

26

Let the number of 25 paise coins $4x$ and
50 paise coins x

G | T

$$\Rightarrow x(0.50) + 4x(0.25) = 30 \text{ RS}$$

$$\Rightarrow 0.50x + x = 30$$

$$\Rightarrow 1.5x = 30$$

$$\Rightarrow \frac{1.5x}{1.5} = \frac{30}{1.5}$$

$$\Rightarrow x = 20$$

[$\because$ 1 RS = 100 paise

50 paise = 0.5 RS

25 paise = 0.25 RS]

50 paise coins $= x = 20$

25 paise coins $= 4x = 4(20) = 80$ coins.

Solution-14:

Let Length be $2x$ and breadth $\rightarrow x$

Then, G | T

perimeter = 228 metres

We know that perimeter $= 2(l+b) = 228$

$$\Rightarrow 2(2x+x) = 228$$

$$\Rightarrow 6x = 228$$

$$\Rightarrow \frac{6x}{6} = \frac{228}{6}$$

$$\Rightarrow x = 38$$

breadth = 38

length $= 2x = 2(38)$
 $= 76$

Solution - 15:-

27

Let the number of 25 paise coins be 'x'

G/T Value of a Purse = Rs 17.50

$$\Rightarrow 0.25(x) = 17.50$$

$$\Rightarrow \frac{25x}{100} = \frac{1750}{100}$$

$$\Rightarrow 25x = 1750$$

$$\Rightarrow \frac{25x}{25} = \frac{1750}{25}$$

$$\Rightarrow x = 70.$$

$\therefore$ Number of coins in the purse = 70.

Solution - 16:-

Let the Number of students be 'x'

Then.

Given that Consumption of rice everyday = 50kg

we know that

$$1\text{kg} = 1000\text{gms}$$

$$50\text{kg} = 50000\text{gms.}$$

X Then G/T

$$400 \times x = 50000$$

$$\Rightarrow 4x = 500$$

$$\Rightarrow \frac{4x}{4} = \frac{500}{4}$$

$$\Rightarrow x = 125.$$

$\therefore$ No of students = 125.