Class :- 8

Subject :- Maths

Exercise :- 2.4

(1)

Ans. Let Amina think a number x.

According to the question, $8\left(x - \dfrac{5}{2}\right) = 3x$

$\Rightarrow \quad 8x - \dfrac{8 \times 5}{2} = 3x$

$\Rightarrow \quad 8x - 4 \times 5 = 3x$

$\Rightarrow \quad 8x - 20 = 3x$

$\Rightarrow \quad 8x - 3x = 20$

$\Rightarrow \quad 5x = 20$

$\Rightarrow \quad x = \dfrac{20}{5} = 4$

Hence, the number is 4.

(2)

Ans. Let another number be x.

Then positive number = $5x$

According to the question, $5x + 21 = 2(x + 21)$

$\Rightarrow 5x + 21 = 2x + 42$

$\Rightarrow 5x - 2x = 42 - 21$

$\Rightarrow 3x = 21$

$\Rightarrow x = \dfrac{21}{3} = 7$

Hence another number = 7 and positive number = 7×5 =35

(3)

Solution:

Let unit place digit be x.

Ten's place digit = 9 − x

Original number = x + 10(9 − x)

Condition I: 10x + (9 − x) (Interchanging the digits)

Condition II: New number = original number + 27

$\Rightarrow$ 10x + (9 − x) = x + 10(9 − x) + 27

$\Rightarrow$ 10x + 9 − x = x + 90 − 10x + 27 (solving the brackets)

$\Rightarrow$ 9x + 9 = -9x + 117 (Transposing 9x to LHS and 9 to RHS)

$\Rightarrow$ 9x + 9x = 117 − 9

$\Rightarrow$ 18x = 108

$\Rightarrow$ x = 108 ÷ 18 (Transposing 18 to RHS)

$\Rightarrow$ x = 6

Unit place digit = 6

Ten's place digit = 9 − 6 = 3

Thus, the required number = 6 + 3 × 10 = 6 + 30 = 36

(4)

Solution:

Let unit place digit be x.

Ten's place digit = 3x

Original number = x + 3x × 10 = x + 30x = 31x

Condition I: 10x + 3x = 13x (interchanging the digits)

Condition II: New number + original number = 88

13x + 31x = 88

⇒ 44x = 88

⇒ x = 88 ÷ 44 (Transposing 44 to RHS)

⇒ x = 2

Thus, the original number = 31x = 31 × 2 = 62

Hence the required number = 62

(5)

Solution:

Let Shobo's present age be x years.

Shobo's mother's age = 6x years.

After 5 years Shobo's age will be (x + 5) years.

As per the condition, we have

$x + 5 = \frac{1}{3} \times 6x$

$\Rightarrow x + 5 = 2x$

$\Rightarrow 5 = 2x - x$ (Transposing x to RHS)

$\Rightarrow 5 = x$

Hence Shobo's present age = 5 years

and Shobo's mother's present age 6x = 6 × 5 = 30 years.

(6)

Solution:

Let the length and breadth of the plot be 11x m and 4x m respectively.

Fencing all around = perimeter of the rectangular plot

Perimeter of the plot = $\frac{75000}{100}$ = 750 m

2(l + b) = 750

⇒ 2(11x + 4x) = 750

⇒ 2(15x) = 750

⇒ 30x = 750

⇒ x = 750 ÷ 30 = 25

length = 11 × 25 m = 275 m

and breadth = 4 × 25 m = 100 m

(7)

Solution:

Ratio of shirt material bought to the trouser material bought = 3 : 2

Let the shirt material bought = 3x m

and trouser material bought = 2x m

Cost of shirt material = 50 × 3x = ₹ 150x

Cost of trouser material = 90 × 2x = ₹ 180x

$$= ₹\left(150x + 150x \times \frac{12}{100}\right)$$

$$= ₹(150x + 18x)$$

$$= ₹\ 168x$$

Selling price of trouser material

$$= ₹\left(180x + 180x \times \frac{10}{100}\right)$$

$$= ₹\ (180x + 18x)$$

$$= ₹\ 198x$$

As per the conditions, we have

168x + 198x = 36,600

⇒ 366x = 36,600

⇒ x = 36600 ÷ 366 = 100

Length of trouser material bought = 2 × 100 = 200 m.

(8)

Solution:

Let the number of deer be x.

As per the condition, we have

$\frac{x}{2}$ deer are grazing in the field.

Remaining numbers $= x - \dfrac{x}{2} = \dfrac{x}{2}$

$\therefore \dfrac{x}{2} \times \dfrac{3}{4} = \dfrac{3x}{8}$ are playing nearby.

Rest of the deer = 9

$\therefore \dfrac{x}{2} + \dfrac{3x}{8} + 9 = x$

LCM of 2 and 8 = 8

$\therefore \dfrac{x}{2} \times 8 + \dfrac{3x}{8} \times 8 + 9 \times 8 = x \times 8$

(Multiplying both sides by 8)

$\Rightarrow$ 4x + 3x + 72 = 8x

$\Rightarrow$ 7x + 72 = 8x

$\Rightarrow$ 72 = 8x − 7x (Transposing 7x to RHS)

$\Rightarrow$ x = 12

Hence, the required number of deer = 72.

(9)

Solution:

Let the present age of granddaughter = x years.

the present age of grandfather = 10x years.

As per the conditions, we have

10x − x = 54

⇒ 9x = 54

⇒ x = 54 ÷ 9 = 6 [Transposing 9 to RHS]

Hence, the present age of the granddaughter = 6 years

and the present age of grandfather = 6 × 10 = 60 years.

(10)

Solution:

Let the present age of the son be x years.

Present age of Aman = 3x years

10 years ago, the son's age was = (x − 10) years

10 years ago, the father's age was = (3x − 10) years

As per the conditions, we have

5(x − 10) = 3x − 10

$\Rightarrow$ 5x − 50 = 3x − 10

$\Rightarrow$ 5x − 3x = 50 − 10(Transposing 3x to LHS and 50 to RHS)

$\Rightarrow$ 2x = 40

$\Rightarrow$ x = 40 ÷ 2 = 20

Hence, the son's age = 20 years.

and the age of Aman = 20 × 3 = 60 years.