

Ability

Question - 1

A) Find the missing term

1- 2, 3, 6, 4, 5, 20, _____, 3, 18

2, 3, 6, 4, 5, 20, 6, 3, 18

2- 1, 3, 9, 15, 25, _____, 49

3- 2, 7, 10, 22, 18, 37, 26, _____

2, 7, 10, 22, 18, 37, 26, 52

26
2
52

4- 34, 7, 37, 14, 40, 28, 43, _____

5- 5, 7, 11, _____, 17, 19

5, 7, 11, 13, 17, 19

(B)

Two numbers are in the ratio of 2:3. If the product of their LCM and HCF is 294. Find the number.

Solution:

Let, the two numbers are $2x$ and $3x$

Product of LCM and HCF
 $LCM \times HCF = 294$

Product of numbers

$$2x \times 3x = 294$$

$$6x^2 = 294$$

$$x^2 = \frac{294}{6}$$

$$x^2 = 49$$

$$\boxed{x = 7}$$

Now, the numbers are

$$2x = 2(7) = 14$$

$$3x = 3(7) = 21$$

So,

$\boxed{\text{The numbers are } 14, 21}$

(C)

How many bricks, each measuring 25 cm, 11.25 cm, 6 cm, will be needed to build a wall of 8 m x 6 m x 22.5 cm?

Solution:

For wall:

length = 8 m (800 cm), Height = 6 m (600 cm)

Width = 22.5 cm

The volume of wall is

$$= 800_{\text{cm}} \times 600_{\text{cm}} \times 22.5 \text{ cm}$$

$$= 10800000 \text{ cm}^3$$

For Brick:

length = 25 cm, Height = 6 cm

Width = 11.25 cm

The volume of Brick is

$$= 25 \times 6 \times 11.25$$

$$= 1687.5 \text{ cm}^3$$

The number of bricks needed

$$= \frac{\text{Vol. of wall}}{\text{vol. of bricks}}$$

$$\frac{\text{Vol. of wall}}{\text{vol. of bricks}}$$

$$\text{No. of bricks} = \frac{10800000 \text{ cm}^3}{1687.5 \text{ cm}^3} = 6400$$

$$\text{No. of bricks} = 6400$$

(Q)

The greater of two numbers is twice the less, and the sum of the numbers is 96. What are the numbers?

Solution:

Let, the two numbers are 'x', 'y'

According to condition 1:

$$y = 2x \rightarrow \textcircled{1}$$

According to condition 2:

$$x + y = 96 \rightarrow \textcircled{2}$$

Putting $\textcircled{1}$ in $\textcircled{2}$

$$x + 2x = 96$$

$$3x = 96$$

$$x = \frac{96}{3}$$

$$x = 32$$

Now,

From 1

$$y = 2x$$

$$y = 2(32)$$

$$y = 64$$

So,

The two numbers are 32 & 64

Question - 2

(A)

In a mixture 60 litres, the ratio of milk and water 2:1. If the ratio is to be 1:2, then the quantity of water to be further added is ?

Solution :

According to the given condition the quantity of milk in 60 litres

$$\text{Milk} = \frac{2}{1+2} \times 60$$

$$= \frac{2}{3} \times 60$$

Milk = 40 litres

The quantity of water

$$= \frac{1}{1+2} \times 60$$

$$= \frac{1}{3} \times 60$$

Water = 20 litres

According to condition 2:

If ratio is 1 : 2

$$\frac{\text{Milk}}{\text{Water}} = \frac{40}{20+x}$$

$$\frac{40}{20+x} = \frac{1}{2}$$

$$40 \times 2 = 20 + x$$

$$80 = 20 + x$$

$$80 - 20 = x$$

$$\Rightarrow \boxed{x = 60}$$

So,

the quantity of water further added is 60 liters

(B)

The age of father 10 years ago was thrice the age of his son. Ten years hence, father's age will be twice that of his son. The ratio of their present ages is ?

Solution:

Let, the age of father be F and that of the son is S .

According to given conditions:
1st

$$F - 10 = 3(S - 10)$$

$$F - 10 = 3S - 30 \rightarrow \textcircled{1}$$

2nd; After ten years

$$F + 10 = 2(S + 10)$$

$$F + 10 = 2S + 20 \rightarrow \textcircled{2}$$

$$\text{Equ. 1} \Rightarrow F - 10 = 3S - 30$$

$$F = 3S - 20 \rightarrow \textcircled{3}$$

$$\text{Equ. 2} \Rightarrow F + 10 = 2S + 20$$

$$F = 2S + 10 \rightarrow \textcircled{4}$$

Equating $\textcircled{3}$ and $\textcircled{4}$

$$3S - 20 = 2S + 10$$

$$3S - 2S = 10 + 20$$

$$S = 30$$

Now, putting S in equ: 3

$$F = 3S - 20$$

$$F = 3(30) - 20$$

$$F = 90 - 20$$

$$F = 70$$

So,

the ratio of the ages of father and son is $70 : 30$

or $7 : 3$

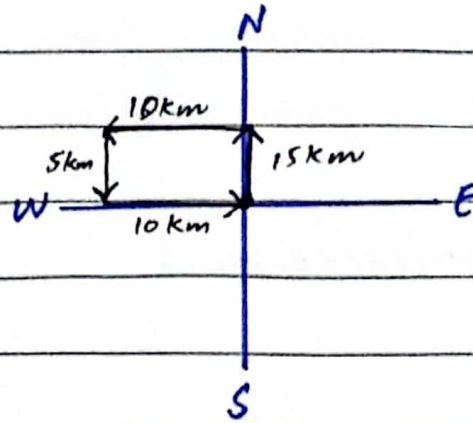
(C)

From this house, Rehman went 15km to the North, then he turned to his left and covered 10km, then again turned to his left and covered 5km. Finally turning to his left again, he covered 10km.

1) In which direction is he from his house?

- 2) How far is he from his house?
3) How much distance he had travelled?

Solution:



1- At final distance, He is directed towards North. So, he is in North from his house.

2- He is 10 km far from his house.

3- The total distance travelled by him
 $15 + 10 + 10 + 5 = 40 \text{ km.}$

(Q)

The ratio between the speeds of two trains is 7:8. If the second train runs 400 km in 4 hours, then the speed of the first train is ?

Solution :

Speed of the second train is

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$= \frac{400 \text{ km}}{4 \text{ hrs}}$$

$$\text{Speed} = 100 \text{ km/h}$$

Ratio of the speeds of two trains is given as $7x$ and $8x$

For second train

$$8x = 100$$

$$x = \frac{100}{8}$$

$$x = 12.5$$

For the first train, the speed is :

$$7x = 7(12.5) = 87.5 \text{ km/h}$$

Speed of 1st train is 87.5 km/h