

~ (Question No. 1) ~

Part A

1) 2, 3, 6, 4, 5, 20, 6, 3, 18

$2 \times 3 = 6$

$4 \times 5 = 20$

$6 \times 3 = 18$

So answer is 6 ✓

2) 1, 3, 9, 15, 25, 35, 49

$$\begin{array}{ccccccccc} 1 & 3 & 9 & 15 & 25 & 35 & 49 \\ \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} \\ +2 & +6 & +6 & +10 & +10 & +14 & \end{array}$$

$3 - 1 = 2$

$2 \text{] } +4$

$9 - 3 = 6$

$6 \text{] } +4$

$15 - 9 = 6$

$10 \text{] } +4$

$25 - 15 = 10$

$14 \text{] } +4$

Adding 10 to the last term 25

$25 + 10 = 35$

As $2 + 4 = 6$

in next term 6 is repeated

in 5th term $6 + 10 = 10$

in 6th term 10 is again repeated

in 7th term $10 + 4 = 14$

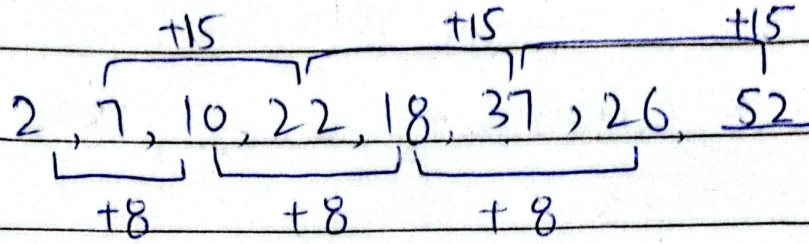
$35 + 14 = 49$

So answer is 35

V. Good
Keep up
Best wishes

3) 2, 7, 10, 22, 18, 37, 26, 52

Sol:



$$2 + 8 = 10$$

$$7 + 15 = 22$$

$$10 + 8 = 18$$

$$22 + 15 = 37$$

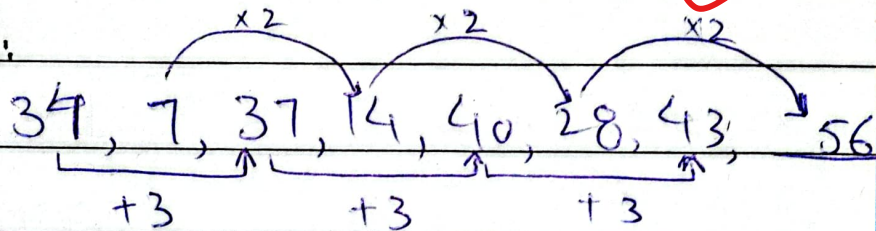
$$18 + 8 = 26$$

$$37 + 15 = 52$$

So answer is **52**

4) 34, 7, 37, 14, 40, 28, 43, 56

Sol:



$$34 + 3 = 37$$

$$7 \times 2 = 14$$

$$37 + 3 = 40$$

$$14 \times 2 = 28$$

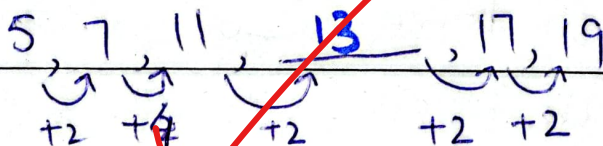
$$40 + 3 = 43$$

$$28 \times 2 = 56$$

So answer is **56**

5) 5, 7, 11, 13, 17, 19

Sol:



$$5+2=7$$

2

$$7+4=11$$

4

$$11+2=13$$

-

2

$$13+4=17$$

4

$$17+2=19$$

2

So answer is 13

Part B

Sol: -

Two numbers' ratio = 2:3

Let the two number = $2x$ and $3x$

LCM \times HCF = Product of the numbers

$$\begin{aligned} \text{Product of the numbers} &= 2x \times 3x \\ &= 6x^2 \end{aligned}$$

Product of LCM & HCF = 294

$$\text{LCM} \times \text{HCF} = 294$$

$$6x^2 = 294$$

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

$$x^2 = 49$$

$$\sqrt{x^2} = \sqrt{49}$$

$$x = 7$$

Putting value of x in first number and second number

$$\text{First number is } 2x = 2(7) \\ = 14$$

$$\text{Second number is } 3x = 3(7) \\ = 21$$

So two numbers are 14 and 21
(LCM and HCF of 14 and 21 is 294)

Part C

Sol:- Dimensions of bricks = $25\text{cm} \times 11.25\text{cm} \times 6\text{cm}$

Dimensions of the wall = $8\text{m} \times 6\text{m} \times 22.5\text{cm}$

- Converting dimensions of wall into centimeters

• Length = $8\text{m} = 800$

• Height = $6\text{m} = 600$

• Thickness = 22.5cm

→ Volume of the wall = length \times height \times thickness

$$\text{Volume} = 800\text{cm} \times 600\text{cm} \times 22.5\text{cm} \\ = 10,800,000\text{cm}^3$$

The dimension of one brick is

• Length = 25cm

• Width = 11.25cm

• height = 6cm

→ Volume of one brick = Length \times width \times height

$$= 25\text{cm} \times 11.25\text{cm} \times 6\text{cm}$$

$$\text{Volume} = 1,687.5\text{cm}^3$$

$$\text{Number of bricks} = \frac{\text{Volume of wall}}{\text{Volume of one brick}}$$

$$= \frac{10,800,000\text{cm}^3}{1,687.5\text{cm}^3}$$

$$\text{Number of bricks} = 6400$$

So 6400 bricks are needed to build a wall.

Part D

Sol:-

Let two numbers are x and y
 x is greater number and y
is lesser number

Given that

Q.15

- The greater number is twice the less number

$$x = 2y \quad \text{--- (1)}$$

- The sum of number = 96

$$x + y = 96 \quad \text{--- (2)}$$

→ Putting value of x in equation (2)

$$x + y = 96$$

$$2y + y = 96$$

$$3y = 96$$

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

$$y = 32$$

→ Putting value of y in equation (1) to find value of x

$$x = 2y$$

$$x = 2(32)$$

$$x = 64$$

So two number are **32** and **64**,
where **64** is greater number and
32 is the lesser number

- 64 is twice of 32

~ (Question No. 2) ~

Part A

Sol: Given that

Mixer = 60 litres

The ratio of milk and water = 2:1

Milk = 2, Water = 1

Total parts = 2 + 1 = 3

• Milk = $\frac{2}{3} \times 60 = 40$ litres ✓

• Water = $\frac{1}{3} \times 60 = 20$ litres ✓

The new ratio = 1:2

The new ratio milk: to water = 1:2

→ Let quantity of Water = W ✓

The amount of milk remains the same which is 40 liters

$$\frac{\text{Milk}}{\text{Water}} = \frac{1}{2}$$

$$\frac{40}{W} = \frac{1}{2} \rightarrow 40 \times 2 = W \times 1$$

$$W = 80 \text{ litres}$$

• Initial water 20 litres

$$\begin{aligned} \text{Water to be added} &= 80 - 20 \\ &= 60 \text{ litres} \end{aligned}$$

To achieve the ratio: $2:1$ for milk to water, the quantity of water which is added is 60 litres.

Part B

Sol:-

Let present age of Father = x

Let present age of Son = y

• 10 years ago

• Father's age = $x-10$

• Son's age = $y-10$

• Equation: $x-10 = 3(y-10)$

$$x-10 = 3y-30$$

• 10 years hence

• Father's age = $x+10$

• Son's age = $y+10$

• Equation = $x+10 = 2(y+10)$

$$x+10 = 2y+20$$

→ First equation

$$x-10 = 3y-30$$

$$x = 3y-30+10 \Rightarrow x = 3y-20 \text{ --- (1)}$$

Second equation $x + 10 = 2y + 20$

$$x = 2y + 20 - 10 \Rightarrow x = 2y + 10 \quad \text{--- (2)}$$

• Equate both equations

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

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

$$y = 30$$

• Putting the value of y in equ (1)

$$x = 2y + 10$$

$$x = 2(30) + 10 \Rightarrow 60 + 10$$

$$x = 70$$

• Ratio of the present ages

Ratio of father's age to son's age

$$x/y = 70/30$$

$$7:3$$

So, the ratio of their present ages is 7:3

Part C

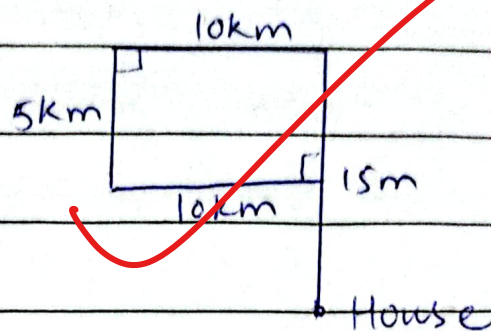
Sol:-

• Rehman went 15km North from his house (North)

• He turned left and covered 10km (West)

• He turned to his left and covered 5 km. (South)

• Then turned again to his left and covered 20 km. (East)



1) North 15 km
South 5 km

$$\begin{aligned} \text{North } 15 \text{ km} - 5 \text{ km} \\ = 10 \text{ km North} \end{aligned}$$

Rehman is 10 km North of his house.

2) He has covered 5 km out of 15 km, 10 km left. So he is 10 km away from his house

3) Total Distance = 15 km + 10 km + 5 km + 10 km
= 40 km

40km

So, Rehman covered total distance

Part D

Sol:-

• The ratio between the speeds of two trains = 7:8

• The second train runs 400km in 4 hours

$$\begin{aligned}\text{Speed} &= \text{Distance} / \text{Time} \\ &= 400 \text{ km} / 4 \text{ hour} \\ &= 100 \text{ km/h}\end{aligned}$$

→ Ratio of speed is 7:8, the speed of first train?

$$\text{Speed of first speed} = (7/8) \times \text{Speed of second train}$$

$$= \frac{7}{8} \times 100 \text{ km/h}$$

$$= \frac{175}{2} \text{ km/h}$$

$$= 87.5 \text{ km/h}$$

So, speed of first train is 87.5 km/h