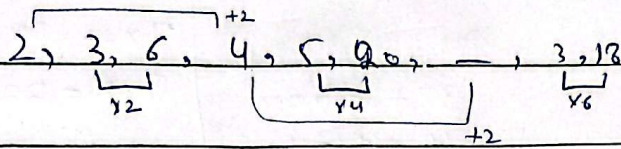


Question #1: Part (a)

(1) 2, 3, 6, 4, 5, 20, —, 3, 18



$2 + 2 = 4$

$3 \times 2 = 6$

$4 + 2 = 6$

$5 \times 4 = 20$

$3 \times 6 = 18$

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

(2) 1, 3, 9, 15, 25, —, 49

$1 = 1$

$1 \times 3 = 3$

$3 \times 3 = 9$

$3 \times 5 = 15$

$5 \times 5 = 25$

$5 \times 7 = 35$

$7 \times 7 = 49$

So, 1, 3, 9, 15, 25, 35, 49

(3) 2, 7, 10, 22, 18, 37, 26, —

Ans,

$2 \times 5 = 10$

$2 \times 9 = 18$

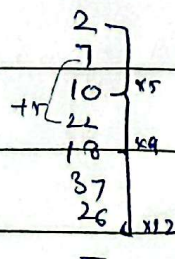
$2 \times 12 = 26$

Similarly,

$7 + 15 = 22$

$22 + 15 = 37$

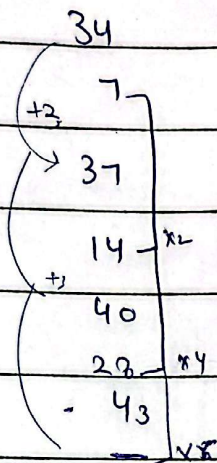
$37 + 15 = 52$





So,  $2, 7, 10, 22, 18, 37, 28, 52$

(4)  $34, 7, 37, 14, 40, 28, 43, \dots$



$$\begin{aligned} 34 + 3 &= 37 \\ 37 + 3 &= 40 \\ 40 + 3 &= 43 \\ 43 + 3 &= 46 \end{aligned}$$

$$\begin{aligned} 7 \times 2 &= 14 \\ 7 \times 4 &= 28 \\ 7 \times 6 &= 42 \end{aligned}$$

So,  $34, 7, 37, 14, 40, 28, 43, 46$

(5)  $5, 7, 11, \dots, 17, 19$

A,

$$\begin{aligned} 5 &= \dots \\ 11 &\rightarrow (5 \times 2) + 1 \\ 17 &\rightarrow (5 \times 3) + 2 \end{aligned}$$

$$\begin{aligned} 19 - 7 &= 12 \\ \frac{7 + 19}{2} &= 13 \\ 7 + 6 &= 13 \\ 13 + 6 &= 19 \end{aligned}$$

So,  $5, 7, 11, 19, 17, 19$

## Part (B)

Let the number =  $x$

So, First number will be =  $2x$

and Second number will be =  $3x$

As given,

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

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

$$\Rightarrow 6x^2 = 294$$

$$x^2 = \frac{294}{6} \quad 49$$

$$x^2 = 49$$

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

$$\boxed{x = 7}$$

So, First number is  $2(7) = 14$

Second number is  $3(7) = 21$

$(14, 21)$

Part (c)

Size of Brick =  $25\text{cm} \times 11.25\text{cm} \times 6\text{cm}$

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

As, ~~1m = 100cm~~

$$2\text{m} = 100\text{cm}$$

$$8\text{m} = 8 \times 100\text{cm}$$

and  $6\text{m} = 600\text{cm}$ .

So, the size of wall in  $\text{cm}^3$  will be:

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

The volume of wall will be =  $800 \times 600 \times 22.5$

$$V_{\text{wall}} = 1080000\text{cm}^3$$

Similarly, the volume of Brick =  $25 \times 11.25 \times 6$

$$V_{\text{brick}} = 1687.50\text{cm}^3$$



To find the total number of bricks,

$$\text{Total bricks} = \frac{\text{Volume of wall}}{\text{Volume of 1 Brick}}$$

$$= \frac{10800000}{1687.50}$$

$$= 6400 \text{ cm}$$

So, total number of brick would be 6400.

**Part (D)**

Greater of number is twice smaller.

Let the number be  $x$ .

So, smaller number =  $x$

Greater number =  $2x$

As according to the given statement,

$$x + 2x = 96$$

$$3x = 96$$

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

$$x = 32$$

Smaller number is 32 and larger number

$$\text{is } 2(32) = 64.$$

Part (A) Question #2:

Part # (a)

Ratio of milk and <sup>Water</sup> Alcohol...

$$\text{Milk} : \text{Water}$$

$$2 : 1 \quad \text{in (60 liters)}$$

We want it to be (1:2) :-

$$\text{Total parts} = 1 + 2 = 3$$

$$\text{The quantity of milk} = \frac{2}{3} \times 60 = 40 \text{ liter}$$

similarly

$$\text{The quantity of water} = \frac{1}{3} \times 60 = 20 \text{ liters}$$

Now, the quantity of water to be added is to be found with ratio 1:2.

$$\text{Milk} : \text{Water}$$

$$40 : 2$$

$$20 + x : 2$$

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

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

$$80 = 20 + x$$

$$x = 80 - 20$$

$$x = 60$$

So, to make the ratio of Milk and water as 1:2 ; 60 liters of water is to be added



Part (b)

Father and Age Son.

Name	Now	Ten years before	Ten years hence
Father (F)	$F = ?$	$F - 10$	$F + 10$
Son (S)	$S = ?$	$S - 10$	$S + 10$

As, 10 years before, the father's age was three of son's age

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

$$F = 3S - 30 + 10$$

$$F = 3S - 20 \quad \text{--- (1)}$$

10 years hence, the age is twice

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

$$F + 10 = 2S + 20$$

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

$$F = 2S + 10 \quad \text{--- (2)}$$

Equating both (1) and (2)

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

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

$$\boxed{S = 30}$$

$$F = 2(30) + 10 = 70$$

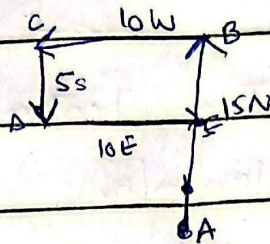
So, son is 30 years old while father is 70 years.



The ratio of their age would be

$$\text{Father} : \text{Son} = 7 : 3$$

Part (c) Direction :-



(a) From the house, Rehman is in North direction

(b) To calculate distance from house, we will take the difference from A to E

$$\text{So, } 15 - 5 = 10 \text{ km}$$

(c) Total distance =  $15 \text{ km} + 10 \text{ km} + 5 \text{ km} + 10 \text{ km}$   
 $= 40 \text{ km}$

Part (d)

Speed of Train (A and B)

$$\text{As, } T_1 : T_2 =$$

$$7x : 8x$$



400 km in 4 hrs =

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

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

The speed of  $T_2 = 100 \text{ km/hr}$

$$8x = 100 \text{ km/hr}$$

$$x = \frac{100 \text{ km/hr}}{8}$$

$$x = 12.5 \text{ km/hr}$$

Now, the speed of  $T_1 = 7(x)$

$$= 7(12.5)$$

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

The speed of  $T_1$  is  $87.5 \text{ km/hr}$

Question # 3:- Part (a)

Investment of friends.

$$A : B : C = M_1 : M_2 : M_3$$

$$5 : 7 : 8 = 14x : 8y : 7z$$

~~Sol~~ ~~Ans~~ Total parts =  $5 + 7 + 8 = 20$



Investment of A : Investment of B :: Months A = Months B

$$14x : 8y :: 5 : 7$$

14

So,

$$14x : 8y = 5 : 7$$

$$\frac{14x}{8y} = \frac{5}{7}$$

$$14x = \frac{5}{7} \times 8y$$

$$x = \frac{5 \times 8 y}{7 \times 14}$$

$$x = \frac{40 y}{98}$$

$$\boxed{\frac{x}{y} = \frac{20}{49}} \quad \text{--- (1)}$$

Similarly,  $B = C$  will be

$$8y : 7z = 7 : 8$$

$$\frac{8y}{7z} = \frac{7}{8}$$

$$\frac{8y}{7} = \frac{7}{8} \times 7z$$

$$\boxed{\frac{y}{z} = \frac{49}{64}} \quad \text{--- (2)}$$

From (1) & (2)

$$\boxed{x : y : z = 20 : 49 : 64}$$



### Part (B):-

Three consecutive odd number.

Let,

$x =$  First consecutive odd number

$x+2 =$  Second consecutive odd number

$x+4 =$  Third consecutive odd number.

To find average, the formula is:

$$\text{Average} = \frac{\text{Sum of numbers}}{\text{Total numbers}}$$

As, average = 91

$$91 = \frac{x+x+2+x+4}{3}$$

$$91 \times 3 = 3x + 6$$

$$273 - 6 = 3x$$

$$3x = 267$$

$$x = \frac{267}{3}$$

$$\boxed{x = 89}$$

### Part (c)

40% of number equals to  $\frac{2}{3}$  of

second number.

$$40\% \text{ of } A = \frac{2}{3} \text{ of } B$$

$$\frac{40}{100} \times (A) = \frac{2}{3} \times (B)$$



$$\frac{A}{B} = \frac{3}{\frac{4\phi}{2}}$$

$$0.64A = 0.6B$$

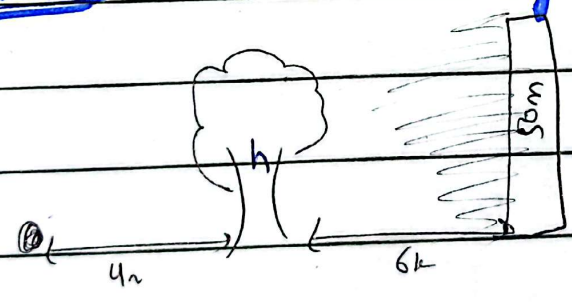
$$\frac{A}{B} = \frac{0.6/8}{4/20}$$

$$\frac{A}{B} = \frac{3}{42}$$

$$\frac{A}{B} = \frac{3}{2}$$

$$A = B = 3 = 2$$

Part (A) Tree - Building



Height<sub>1</sub> : Distance<sub>1</sub>

$$H : 4$$

Height<sub>2</sub> : Dist<sub>2</sub>

$$50 : (4+6) 10$$

$$\frac{H}{4} = \frac{50}{10}$$

$$10H = 200$$

$$H = \frac{200}{10} = 20$$

So, height of tower is 20m.