

TEST #03

DATE: / /

Aludda.

QUESTION #01

PART A

Find the missing terms.

i- $2, 3, 6, 4, 5, 20, \underline{6}, 3, 18$

Logic: $2 \times 3 = 6$

$4 \times 5 = 20$

$6 \times 3 = 18$

So missing number is 6.

ii- $1, 3, 9, 15, 25, \underline{35}, 49$

Logic: $(1)^2 = 1$

$(2)^2 - 1 = 4 - 1 = 3$

$(3)^2 = 9$

$(4)^2 - 1 = 16 - 1 = 15$

$(5)^2 = 25$

$(6)^2 - 1 = 36 - 1 = \underline{35}$

$(7)^2 = 49$

So missing number is 35.

iii- $2, 7, 10, 22, 18, 37, 26, \underline{\quad}$

iv- $34, 7, 37, 14, 40, 28, 43, \underline{56}$

Logic: There are two series.

$34 \quad 37 \quad 40 \quad 43$

$7 \quad 14 \quad 28 \quad \rightarrow \underline{56}$
 $\times 2 \quad \rightarrow \quad \times 2 \quad \rightarrow \quad \times 2$

So missing no. is 56.

v- $5, 7, 11, 13, \underline{\quad}, 17, 19$

NO
V. Good
Keep up
Best wishes

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Logic: list of Prime number.

X ——— X

PART B

1- Ratio: Given:

Two numbers in ratio = 2:3

Product of HCF & LCM = 294.

2- To Find:

Number: ?

3- Formula:

LCM \times HCF = product of number.

4- Solution:

Let the number be $2x$ and $3x$, then

LCM \times HCF = product of number.

$$294 = 2x + 3x$$

$$294 = 6x^2$$

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

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

$$6$$

$$x^2 = 49$$

Taking " $\sqrt{\quad}$ " on both sides.

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

$$x = \sqrt{49}$$

$$x = 7$$

so Hence,

$$1^{st} \text{ number} = 2x = 2 \times 7 = 14$$

$$2^{nd} \text{ number} = 3x = 3 \times 7 = 21$$

so both numbers are 14 and 21 | Ans

X ——— X

PART C

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1- Given:

Measurement of a brick = $25\text{cm} \times 11.25\text{cm} \times 6\text{cm}$

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

2- To find:

No. of bricks used =)

3- Formula:

$$\text{Volume} = l \times b \times h \quad ; \quad \text{No. of bricks} = \frac{\text{Volume of wall}}{\text{Volume of brick}}$$

4- Solution:

Let's find volume of a brick:

$$\begin{aligned} V_{\text{brick}} &= l \times b \times h \\ &= 25 \times 11.25 \times 6 \\ &= 25 \times 67.5 \end{aligned}$$

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

Let's find volume of wall.

$$\begin{aligned} V_{\text{wall}} &= l \times b \times h \\ &= 800 \times 600 \times 22.5 \quad (\because 1\text{m} = 100\text{cm}) \\ &= 480000 \times 22.5 \end{aligned}$$

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

Now to find the number of brick, using formula.

$$\begin{aligned} \text{No. of bricks} &= \frac{\text{Volume of wall}}{\text{Volume of a brick}} \\ &= \frac{10800000}{1687.5} \\ &= 6400 \end{aligned}$$

So, 6400 bricks will be used to cover the wall.

X ——— X

PART-D

✓ Given:

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Sum of two numbers = 96

2. To Find:

Number 1 = $x = ?$

Number 2 = $y = ?$

3. Solution:

Let 'x' be the greater number then:

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

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

Putting value of x from (1) in equation (2)

$$2y + y = 96$$

$$3y = 96$$

$$y = \frac{96}{3} = 32$$

$$y = 32$$

Now,

$$\text{eqn (1)} \rightarrow x = 2y$$

$$x = 2 \times 32 = 64 \quad \text{--- } x = 64$$

so, one number is 32 and the greater one is 64.

X ————— X

QUESTION #2

PART A

- Given:

Amount of mixture = 60 liter

Ratio of milk and water = ~~1:2~~ 2:1

New ratio of milk and water = 1:2

- To Find:

Quantity of water to be further added = ?

- Solution:

As we know, ratio of milk and water

is

2:1

Total parts are 3

So amount of Milk in 60 liter is-

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

$$= 2 \times 20$$

$$\text{Milk} = 40 \text{ lts}$$

Same ways, amount of water in 60 liter of mixture

is:

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

$$\text{Water} = 20 \text{ liter}$$

The ratio of milk to water in new mixture is

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

If 'x' quantity of water is to be added then according to given question

$$\frac{\text{Milk}}{\text{Water} + \text{added amount}} = \frac{1}{2}$$

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

Cross multiplication gives.

$$x+20 = 80$$

$$x = 80 - 20$$

$$x = 60 \text{ liter}$$

So, amount of water to be added to get 1:2 ratio of milk to water is 60 liter.

X — X

PART B1- GivenFather age = x Son age = y 2- To Find:

Ratio of their ages at present = ?

3- Solution:

Let age of father be x and son be y also. So, 10 years before.

Age of Father = Age of son

~~$$3x = y$$~~

~~Present time.~~

~~$$3x + 10 = y + 10$$~~

~~After 10 years,~~

~~$$3x + 10 + 10 = 2[(y + 10) + 10]$$~~

~~$$3x + 20 = 2(y + 20)$$~~

~~$$3x + 20 = 2y + 40$$~~

~~putting $y = 3x$ in above.~~

~~$$3x + 20 = 2(3x) + 40$$~~

~~$$3x + 20 = 6x + 40$$~~

~~Age of Father = Age of son~~

~~$$x - 10 = 3(y - 10)$$~~

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

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

~~$$x = 3y - 20 \quad \text{--- (1)}$$~~

~~After 10 years, their ages will be.~~
~~Age of father = Age of son.~~

~~$$x + 10 = 2(y + 10)$$~~

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

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

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

Now,

$$x = x$$

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

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

$$y = 30$$

So

$$\text{Age of son} = y = 30$$

and

$$\text{Age of Father} = x = 2y + 10 = 2 \times 30 + 10 = 60 + 10$$

$$\text{Age of Father} = x = 70$$

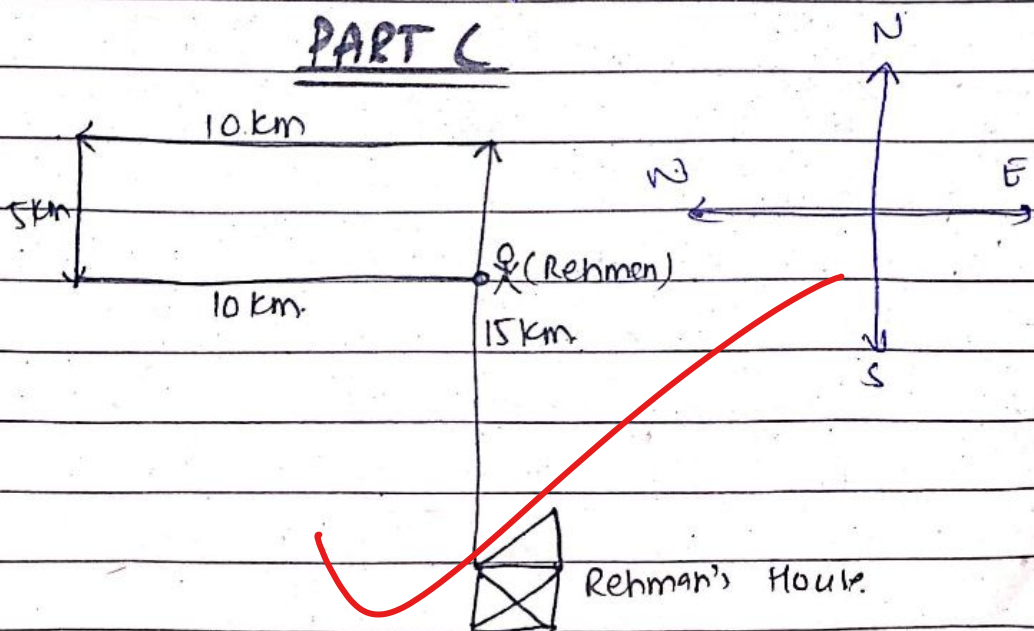
Then

$$\text{ratio of their ages} = \frac{x}{y} = \frac{70}{30} = \frac{7}{3}$$

So 7:3 is the ratio of father's age to son's age at present.

X ————— X

PART C



i- In which direction is he from his house.

Rehman is in the North of his house.

ii- How far is he from his house?

As from diagram, Rehman travelled in a rectangle in a rectangle.

$$(5m) l = l(km)$$

$$(10km) b = b(10km)$$

At first he travelled 15 km to North of his house 10.

$$\begin{aligned} \text{Distance from House} &= \text{Distance covered in North} - l \\ &= 15 - 5 \end{aligned}$$

$$\boxed{\text{Distance from House} = 10 \text{ km. | Ans}}$$

3- How much distance he has travelled.

$$\begin{aligned} \text{Distance Traveled by Rehman} &= 15 + 10 + 5 + 10 \end{aligned}$$

$$\boxed{\text{Distance travelled} = 40 \text{ km | Ans}}$$

X ——— X

PART D

Ratio of speeds of two train = 7:8

Distance covered by 2nd train = 400 km.

Time taken by 2nd train = 4 hour.

Speed of 1st train.

As we know that

$$\text{Speed} = \frac{\text{Distance covered}}{\text{time taken}}$$

Hence, Speed of 2nd train.

$$S_1 = \frac{400}{4}$$

$$S_2 = 100 \text{ km/hr.}$$

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Let 'x' be the total speed so

$8x$ = Speed of 2nd train.

$S_2 = 8x$.

$100 = 8x$

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

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

Likewise, speed of 1st train

Speed of 1st train = $7x$

$$= 7 \times 12.5$$

$$S_1 = 87.5 \text{ km/hr}$$

So, Speed of 1st train is 87.5 km/hr Ans

QUESTION #03

PART B

Extra attempt
does not
count:

1- Given:

Avg of 3 consecutive odd numbers = 91

2- To Find:

1st odd no. = ?

2nd " " = ?

3rd odd no. = ?

3- Formula:

$$\text{Avg} = \frac{\text{Sum of all values}}{\text{total no. of values}}$$

4- Solution:

Using the formula:

$$\text{Avg} = \frac{\text{Sum of 3 consecutive odd numbers}}{\text{Total no. of value}}$$

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

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$$91 = \frac{3x + 6}{3}$$

$$3x + 6 = 273$$

$$3x = 273 - 6$$

$$x = \frac{267}{3} = 89$$

$$x = 89$$

Hence

$$\text{1st odd number} = x = 89$$

$$\text{2nd odd number} = x + 2 = 89 + 2 = 91$$

$$\text{3rd odd number} = x + 4 = 89 + 4 = 93$$

Ans

X ——— X

PART - C

Given Equation in statement:

Let both numbers be 'x' and 'y'

so according to given statement -

$$40\% x = \frac{2}{3} y$$

$$\text{or } \frac{40x}{100} = \frac{2y}{3}$$

$$40x = \frac{2y}{3} \times 100$$

$$40x = \frac{200y}{3}$$

$$20x = 100y$$

$$20x = \frac{100y}{3}$$

$$\frac{x}{y} = \frac{100 \cdot 5}{3 \times 20}$$

$$\frac{x}{y} = \frac{5}{3}$$

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So, ratio of the 1st no. to 2nd is $5:3$
 $x \quad \quad \quad x$

PART B

Profit share of 3 partners = $5:7:8$

Investment time ratios = $14m : 28m : 7m$

Ratio of investments

Ratio share of profit \therefore Investment time ratio

$$5:7:8 \quad \therefore \quad 14x : 8y : 7z$$

or

$$14x : 8y : 7z \quad \therefore \quad 5 : 7 : 8$$

Now,

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

By cross-multiplication; we get

$$98x = 40y$$

$$\Rightarrow 40y = 98x$$

$$y = \frac{98x \cdot 40}{40 \cdot 20}$$

$$y = \frac{49x}{20}$$

Also,

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

Cross-multiplication give

$$112x = 35z$$

$$\Rightarrow 35z = 112x$$

$$z = \frac{112x}{35}$$

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So now ratio of profit share,

$$x : y : z$$

$$x : \frac{40x}{20} : \frac{112x}{35}$$

$$x \longrightarrow x$$