

A. Missing terms

1. ~~2, 3, 6, 4, 5, 20, 3, 18~~

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

39
V. Good
Keep up

To find the missing number, let's analyze the pattern of sequence. The alternate numbers follow the following pattern.

$$9 - 1 = 8$$

$$15 - 3 = 11$$

$$25 - 9 = 16$$

$$\underline{\quad} - 15 = 22$$

$$49 - 25 = 24$$

↓

The difference of alternate numbers follow pattern of multiplications of 8

$$8 \times 2 = 16$$

$$8 \times 3 = 24$$

$$8 \times 4 = 32$$

Similarly, alternate numbers follow pattern of multiples of 11

$$11 \times 1 = 11$$

$$11 \times 2 = 22$$

$$11 \times 3 = 33$$

So, the missing number should be 26

$$26 - 15 = 11$$

Hence,

Final sequence is,

1, 3, 9, 15, 25, ~~26~~, 49

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

lets analyze the pattern, the difference of alternate number follows the common pattern

$$10 - 2 = 8$$

~~$$7 - 2 = 5$$~~

$$18 - 10 = 8$$

$$22 - 7 = 15$$

$$26 - 18 = 8$$

$$37 - 22 = 15$$

$$\underline{52 - 37 = 15}$$

By following the sequence the missing number should be 52

Final pattern,

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

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

By analyzing the sequence, there is common pattern in alternate numbers

$$37 - 34 = 3$$

$$14 - 7 = 7 \quad (7 \times 1)$$

$$40 - 37 = 3$$

$$28 - 14 = 14 \quad (14 \times 2)$$

$$43 - 40 = 3$$

$$\underline{56 - 28 = 28} \quad (28 \times 2)$$

The final sequence should be
34, 7, 37, 14, 40, 28, 43, 56

5. 5, 7, 11, , 17, 19

The above sequence has common pattern
~~seq~~ of differences

$$7 - 5 = 2$$

$$11 - 7 = 4$$

$$13 - 11 = 2$$

$$17 - 13 = 4$$

$$19 - 17 = 2$$

$$23 - 19 = 4$$

By observing the above sequence, there
 is alternate difference of 2 and 4
 Hence, the missing number should be
 13.

Final sequence,

5, 7, 11, 13, 17, 19

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

The sequence shows that every two numbers
 multiply to form third number

$$2 \times 3 = 6$$

$$4 \times 5 = 20$$

$$6 \times 3 = 18$$

Hence, the number should be 6

6

B.

Two number are given

$$\text{Ratio} = 2:3$$

$$\text{product of LCM \& HCF} = 294$$

let product be,

$$2x \times 3x = 6x^2$$

the product of number is equal to
product of their HCF & LCM

$$6x^2 = 294$$

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

$$x = 7$$

The numbers are:

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

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

C.

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

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

convert into "cm"

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

$$\begin{aligned} \text{The volume of wall} &= L \times b \times h \\ &= 800 \times 600 \times 22.5 \\ V_1 &= 10800000 \text{ cm}^3 \end{aligned}$$

$$\begin{aligned} \text{Volume of Bricks } (V_2) &= 25 \times 11.25 \times 6 \\ V_2 &= 1687.5 \text{ cm}^3 \end{aligned}$$

$$\text{The number of bricks} = \frac{\text{Volume of wall}}{\text{Volume of bricks}}$$

$$\begin{aligned} &= \frac{10800000}{1687.5} \\ &= 6400. \end{aligned}$$

Answers

The number of bricks needed are almost 6400.

D.

The greater number is twice the less
so it will be "2x"

lesser number will be "x"

Sum of the two = 96

$$2x + x = 96.$$

$$3x = 96$$

$$x = 32$$

The numbers are $x = 32$

$$2x = 2(32) = 64$$

QUESTION. 2

A. mixture contains 60 litre
in the Ratio = 2:1

The water in 60L = $\frac{60 \times 1}{3} = 20L$

The milk in 60L = $\frac{60 \times 2}{3} = 40L$

To make the ratio of milk: water = 1:2
water should be doubled than milk.

Initial milk is 40L x 2

= 80L -> Double, this

quantity of water should be present to
change the ratio.

The current amount of water in the
mixture is 20L

Hence,

the required amount to be added
should be

$80 - 20L = 60L$

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To change the ratio to 1:2, 60L
of water should be added in the
mixture.

B.

10, year ago
Age of father = x Age of son = $3y$ $\rightarrow (x-10) = 3(y-10) \rightarrow \textcircled{i}$

After 10 years

Father's age = x Son's age = $2y$ $\rightarrow x+10 = 2(y+10) \rightarrow \textcircled{ii}$

From eq (i)

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

$$x = 3y-20 \rightarrow \textcircled{iii}$$

From eq (ii)

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

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

$$x = 2y+10 \rightarrow \textcircled{iv}$$

equating equation (iii) & (iv)

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

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

$$y = 30 \text{ years.}$$

From eq (iii)

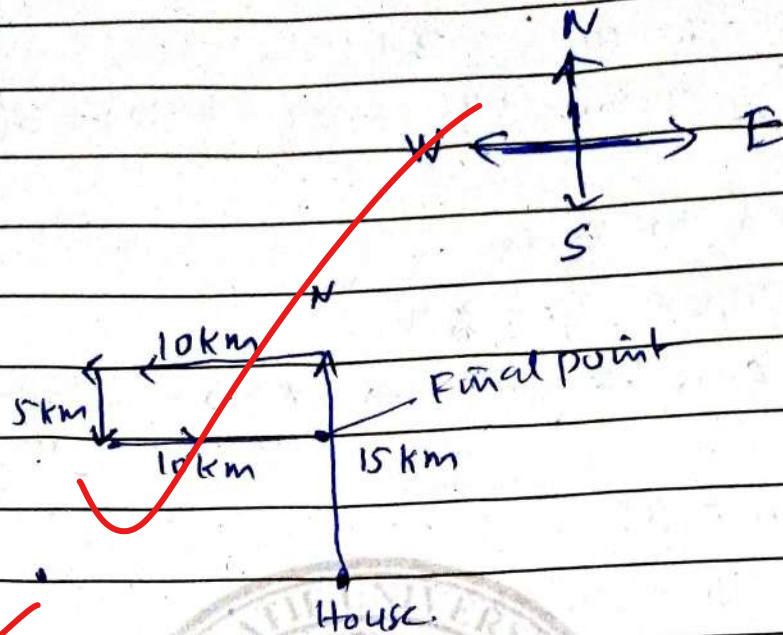
$$x = 3y-20$$

$$x = 3(30)-20 = 90-20$$

$$\boxed{x = 70}$$

The ratio of the ages = $70:30$
 $7:3$ Answer.

c.



1. The above path show that Rehman is in the North direction from his house.

2. The above diagram shows that he is 10 km away from his house.

3. The total distance traveled by

Rehman =

$$15 + 10 + 5 + 10 = 40 \text{ km.}$$

The net distance away from house covered by Rehman is only 10 km.

D.

Ratio of speed of trains = 7:8

Second train covers distance of
400 km in 4 hours.

Speed of first train = ?

We will find the velocity of second train
(v_2)

$$v_2 = \frac{d}{t} = \frac{400}{4} = 100 \text{ km/hour}$$

The ratio of speed is

$$7:8$$

$$7x : 8 \times 100$$

By multiplying both extremes.

$$7x \times 100 = 8x$$

$$x = \frac{700}{8}$$

$$x = 87.7 \text{ km/h}$$

The speed of first train is 87.7 km/h