

QUESTION - 1

(A)

(a) 3, 9, 21, 39, 63, _____

In the above sequence, the difference between numbers are increasing multiples of 6 in a following pattern:

$$9 - 3 = 6 \quad (6 \times 1)$$

$$21 - 9 = 12 \quad (6 \times 2)$$

$$39 - 21 = 18 \quad (6 \times 3)$$

$$63 - 39 = 24 \quad (6 \times 4)$$

$$x - 63 = 30 \quad (6 \times 5)$$

The above differences are clearly multiples of 6

So the next number should be:

$$x - 63 = 30$$

$$x = 30 + 63$$

$$x = 93$$

Hence the next number in the given pattern is 93.

(b)

1, 5, 11, 21, 37, _____

In the above sequence difference between numbers are:

$$5 - 1 = 4$$

$$11 - 5 = 6$$

$$21 - 11 = 10$$

$$37 - 21 = 16 \rightarrow +10$$

$$x - 37 = \underline{\hspace{2cm}}$$

Again finding the differences of differences to determine sequence:

$$6 - 4 = 2$$

$$10 - 6 = 4$$

$$16 - 10 = 6$$

The next difference should be 8

$$24 - 16 = 8$$

Adding 24 in the ~~1st~~ equation sequence:

$$24 + 37 = 61$$

Hence, the successive number in the pattern should be 61.

(c) 5, 16, 29, 46, 65, 88, ~~117~~

The differences in the successive numbers are given below:

$$16 - 5 = 11$$

$$29 - 16 = 13$$

$$46 - 29 = 17$$

$$65 - 46 = 19$$

$$88 - 65 = 23$$

$$x - 88 = ?$$

As the above pattern shows there is difference of prime numbers. In each successive number, prime number is added. So the next prime number after 23 is 29. By adding 29 in 88 the next number is determined which is 117.

(d) 1, 3, 4, 9, 27, 36, 243, _____, 972

In the above pattern, the multiples of 3 and 4 the 2nd and 3rd number are 3 times and 4 times of 1st number.

$$1 \times 3 = 3$$

$$1 \times 4 = 4$$

Similarly, 4th number when follow similar pattern (multiply by 3 and 4) as shown: $9 \times 3 = 27$

The next 3 numbers would also follow same pattern $9 \times 4 = 36$.
 $243 \times 3 = 729$ $36 \times 243 \times 4 = 972$ So, the missing number is **729**

(B) In code language KENWOOD written as RRGWICL PANASONIC is written as =?

By numbering the given words:

$$K = 11 \xrightarrow{+7} R = 18$$

$$E = 5 \xrightarrow{+13} R = 18$$

$$N = 14 \xrightarrow{-7} G = 7$$

$$W = 23 \xrightarrow{+0} W = 23$$

$$O = 15 \xrightarrow{-6} \Sigma = 9$$

$$O = 15 \xrightarrow{-12} C = 3$$

$$D = 4 \xrightarrow{+8} L = 12$$

To determine code language of PANASONIC, similar pattern is followed as in above,

$$P = 16 \xrightarrow{+7} I = 9 \quad 23 = W$$

$$A = 1 \xrightarrow{+13} C = 3 \quad 14 = N$$

$$N = 14 \xrightarrow{-7} \rightarrow T = G$$

$$A = 1 \xrightarrow{+0} 1 = A$$

$$S = 19 \xrightarrow{-6} 13 = M$$

$$O = 15 \xrightarrow{-12} 13 = C$$

$$N = 14 \xrightarrow{+8} 22 = V$$

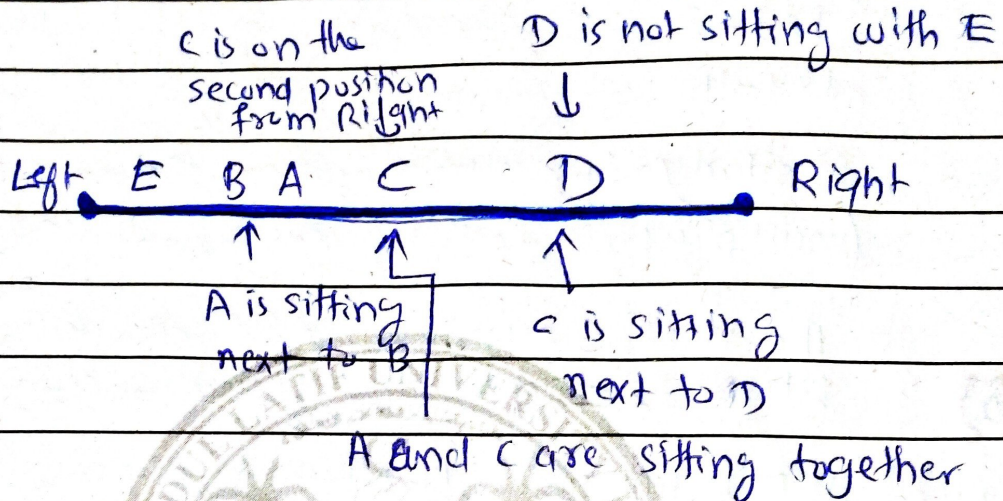
Hence the code should be

WNGAMCVIC

C.

As A, B, C, D, E are sitting on a bench

In the given statement E is on the left corner of the bench.



As shown above, after completing all given criteria the position of 'A' is at the center of the bench.

D)

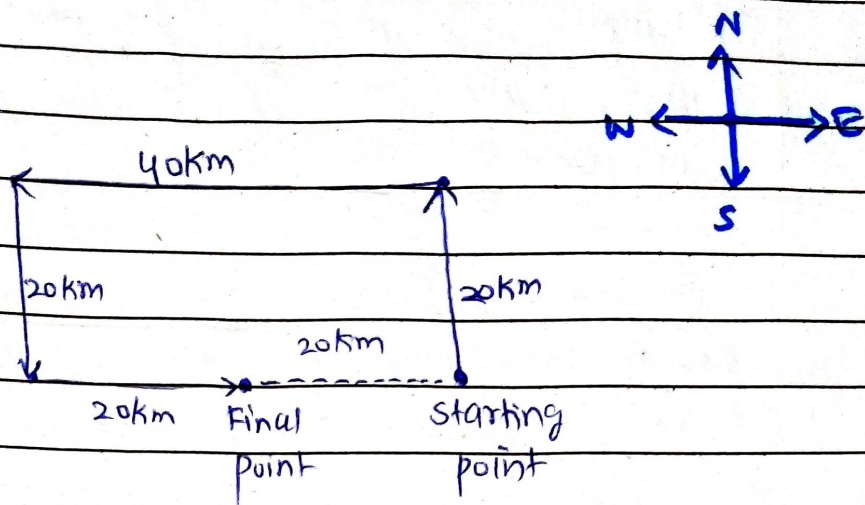
A's son is married with C whose sister D is married to E the brother of B.

D's relation with A?

As E and B are brothers and both are sons of A. Additionally, C and D are sisters married to B and E respectively. So the relation of D with A is of daughter in law. D is the daughter in law of "A".

QUESTION-02

(B)



He is 20km far from his starting position.

Salem has travelled: $20 + 40 + 20 + 20 = 100 \text{ km}$

He is moving in East direction

(C)

In city X, let the number of women are " $\frac{x}{2}$ " and number of men are " x "

- In city Y when 10 men leave and 5 women enter the number of women and men becomes equal
Passengers in the start of journey - were = ?

As number of men and women become equal after 5 women enter and 10 men leave, the equation will be:

$$\frac{x}{2} + 5 = x - 10$$

Solving the above equation,

$$x - \frac{x}{2} = 5 + 10$$

$$\frac{x}{2} = 15$$

$$x = 15 \times 2$$

$$x = 30$$

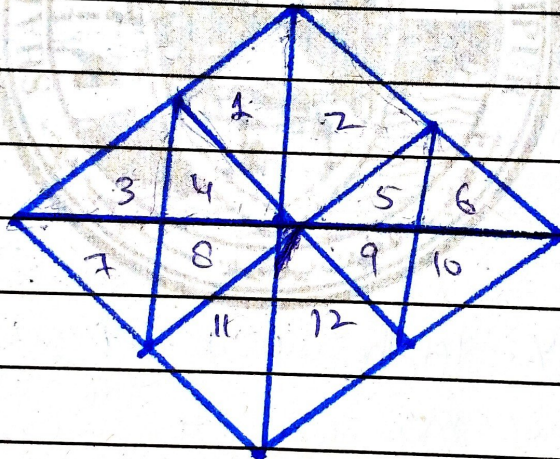
Initially women were " $\frac{x}{2}$ " and men were " x ". By putting values of x in both:

$$\text{women} = \frac{x}{2} = \frac{30}{2} = 15$$

$$\text{men} = x = 30.$$

So, in the beginning, total passengers were $15 + 30 = 45$.

(D)



Using the formula to find total number of triangles

$$\frac{n(n+1)}{2}$$

where n = highest number at base.

$$\frac{12(12+1)}{2} = \frac{12(13)}{2} = 6 \times 13$$

$$\text{Number of triangles} = 78$$

(A)

Father is aged 3 times more than Rashid.

let Father be " x " and Rashid be " y "

$$x = 3y \rightarrow \textcircled{1}$$

After 8 years, Father would be 2 and half times of Rashid's age.

$$x + 8 = 2.5(y + 8) \rightarrow \textcircled{2}$$

putting value of " x " from eq $\textcircled{1}$ in eq $\textcircled{2}$

$$3y + 8 = 2.5y + 20$$

$$3y - 2.5y = 20 - 8$$

$$0.5y = 12$$

$$y = \frac{12}{0.5}$$

$$y = 24$$

So the ^{initial} age of son (Rashid) is 24.

$$\text{As } x = 3y$$

$$x = 3(24)$$

$$x = 72$$

Father's age is 72

- After 16 years the ages of son and father would be:

$$y = 24 + 8 = 32$$

$$x = 72 + 8 = 80.$$

Finding the ratio:

$$\frac{\text{Father}}{\text{son}} = \frac{80}{32} = \frac{2.5}{1}$$

So, Father would be 2.5 times older than son (Rashid)