DATE: 4 /NOV/2025 CS & A .. (Test-2)

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Question. 1

Part (A)

A) Find the missing term:

a) 3, 9, 21, 39, 63, ____

Solution

9 - 3 = 6

21 - 9 = 12

39 - 21 = 18

63 - 39 = 24

Differences = 6, 12, 18, 24 → each increases by 6

Now, finding the next difference.

Next difference: 24 + 6 = 30

Adding to the last term

63 + 30 = 93

ANSWER = **93**

The next value in the pattern.

b) 1, 5, 11, 21, 37, ____

Finding the differences in the pattern

- 5 - 1 = 4
- 11 - 5 = 6
- 21 - 11 = 10

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37 - 21 = 16

Difference = 4, 6, 10, 16

Second - Differences,

6 - 4 = 2

10 - 6 = 4

16 - 10 = 6

It follows a pattern, so the next increase should be +8.

Finding the next difference

16 + 8 = 24

Now Add to the last term

37 + 24 = 61

ANSWER: **61** is the missing term.

c) 5, 16, 29, 46, 65, 88, ____

Differences,

16 - 5 = 11

29 - 16 = 13

46 - 29 = 17

65 - 46 = 19

88 - 65 = 23

This is the sequence of prime Numbers. The next number in the pattern is 29.

88 + 29 = 117

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ANSWER = 117

The missing term

d) 1, 3, 4, 9, 27, 36, 243, ___, 972

$3^0 = 1$

$3^1 = 3$

$3 + 1 = 4$

$3^2 = 9$

$3^3 = 27$

Next $9 + 27 = 36$

$3^5 = 243$

$3^6 = 729$

$243 + 729 = 972$

The missing term is 729.

Part (C)

Left

E B A C D Right

A is sitting between B and C.

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B

Part (B)

K E N W O O D

+7 +13 −7 0 −6 +12 +8

R R G W I C L

Applying this pattern to PANASONIC

Letter	Shift	New Letter
P	+7	W
A	+13	N
N	−7	G
A	0	A
S	−6	M
O	−12	C
N	+8	V
I	+7	P
C	+13	P

ANSWER:

PANASONIC → WNGAMCVPP

Part (D)

Given

A is the parent of B.

B is married to C

D is the sister of C.

D is married to E.

E is the brother of B.

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Now, following the relation between D and A.

Since D is married to E, who is the brother of B.

→ E is A's son.

Hence, D is A's son's wife.

ANSWER:

D is A's daughter-in-Law.

Question 2

Part(A)

Solution

Let Son age = x

father age = $3x$

After 8 years,

Father Age: $2\frac{1}{2}(x+8)$

Son Age: $x+8$

So,

$$3x+8 = 2\frac{1}{2}(x+8)$$

$$3x+8 = \frac{5}{2}(x+8)$$

$$2(3x+8) = 5x+40$$

$$6x+16 = 5x+40$$

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$6x - 5x = 40 - 16$

$x = 24$

Son Age = 24

Fathers Age = $3(x) = 3(24)$

$= 72$

After 8 years = $x + 8$

Father 8 years = $x + 8 + 8 = x + 16$

Son's ~~Father's~~ Age = $24 + 16 = 40$ years

Father's Age = $72 + 16 = 88$ years.

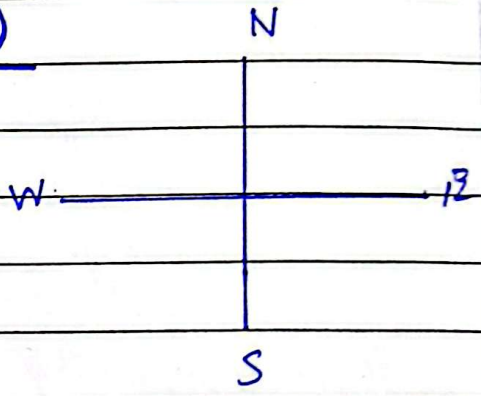
Now, How many times?

$\frac{88}{40} = 2.2$ times.

The Father will be 2.2 times of Rashid Age.

Part (B)

Solution



How far from starting point = 20 km

Total distance = $20 + 40 + 20 + 20$

$= 100$ km

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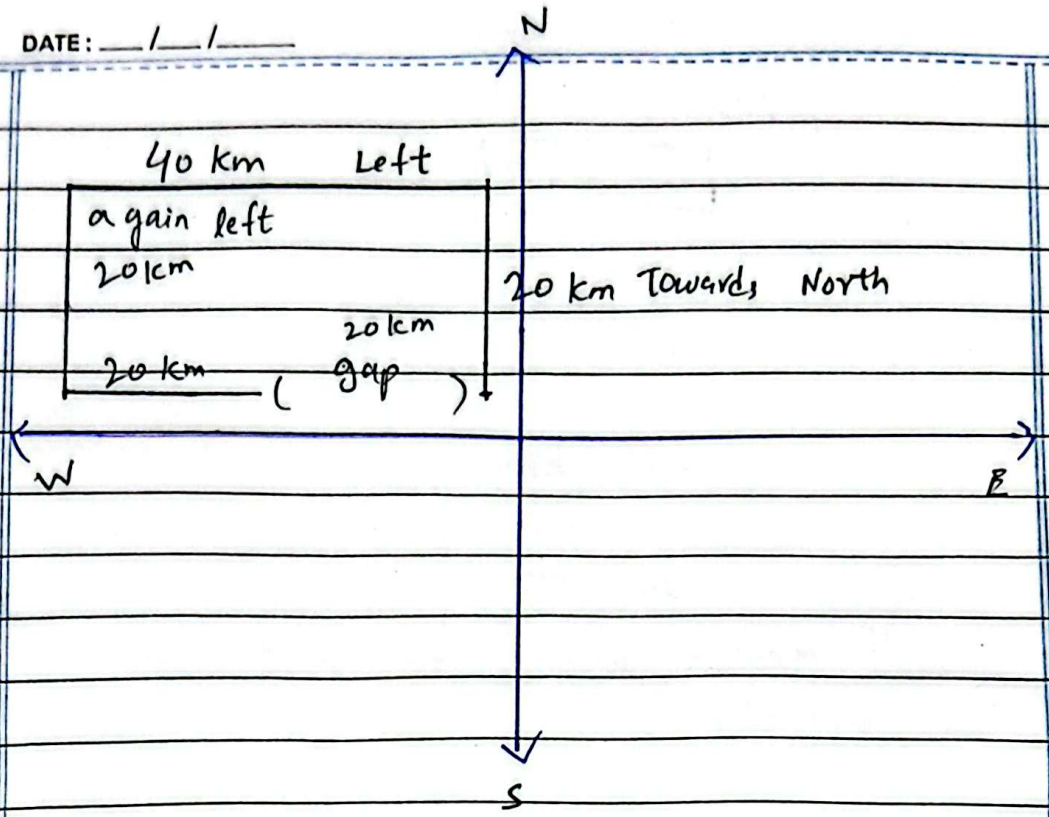

In which direction he is moving = East

Direction from his initial position = West

Part (C)

Solution

Let, In city X

number of men = x

women = $\frac{1}{2}x$

In city Y,

number of men = number of women

$$x - 10 = \frac{1}{2}x + 5$$

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

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

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

$$\boxed{x = 30}$$

Total Number of women initially

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

$$w = \frac{30}{2}$$

$$w = 15$$

15 women were their in the bus initially

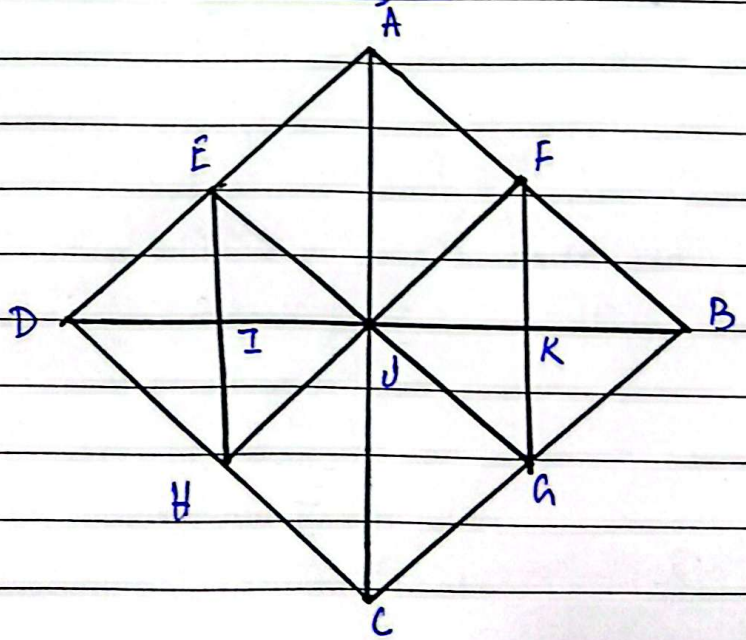
Now, finding total number of passengers initially

$$= 30 + 15$$

$$= 45$$

45 passenger entered the bus initially.

Part (D)



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Solution

Simplest triangles AFG, FJK, FKB, BKG, JKG, JCG, HJC, HJ, DIH, DEI, EIJ, AEJ

= 12 total

Triangle with two components :

· JFB, FBG, BJG, JFG, DEJ, EJH, DJH, DEH.

= 8 total

Triangle with three components are:

AJB, JBC, DJC, ADJ

= 4 total

Triangle with six components:

DAB, ABC, BCD, ADC

= 4 total

Thus,

Total number of triangles in the figure = 12 + 8 + 4 + 4

= 28

ANSWER, there are 28 triangles in the figure.

The End