

DATE: 4 / NOV / 2025

C&A

(Test-2)

Name: Maryam Kainaat

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 $\rightarrow$ each increases by 6

Now, finding the next difference.

$$\text{Next difference} = 24 + 6 = 30$$

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

$$5 - 1 = 4$$

$$11 - 5 = 6$$

$$21 - 11 = 10$$

$$37 - 21 = 16$$

$$\text{Difference} = 4, 6, 10, 16$$

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

$$37 + 24 = 61$$

$$\text{ANSWER} = \boxed{61}$$

is the missing term.

c) $5, 16, 29, 46, 65, 88, \underline{\quad}$

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 At 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 = $2x$

Father age = $3x$

After 8 years,

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

$$\text{Son Age} = x+8$$

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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$$6n - 5n = 40 - 16$$

$$n = 24$$

$$\text{Son's Age} = 24$$

$$\begin{aligned}\text{Father's Age} &= 3(n) = 3(24) \\ &= 72\end{aligned}$$

$$\text{After 8 years} = n + 8$$

$$\text{Further 8 years} = n + 8 + 8 = n + 16$$

$$\text{Son's ~~Father's~~ Age} = 24 + 16 = 40 \text{ years}$$

$$\text{Father's Age} = 72 + 16 = 88 \text{ years.}$$

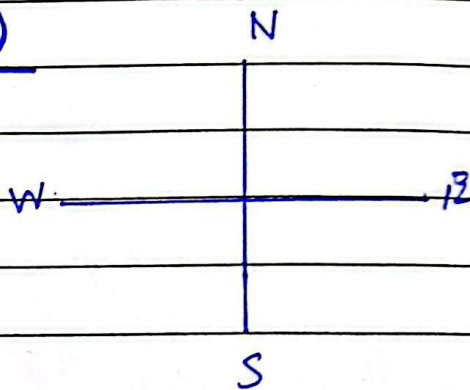
Now, How many times?

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

The Father will be 2.2 times of Rashid's Age.

Part (B)

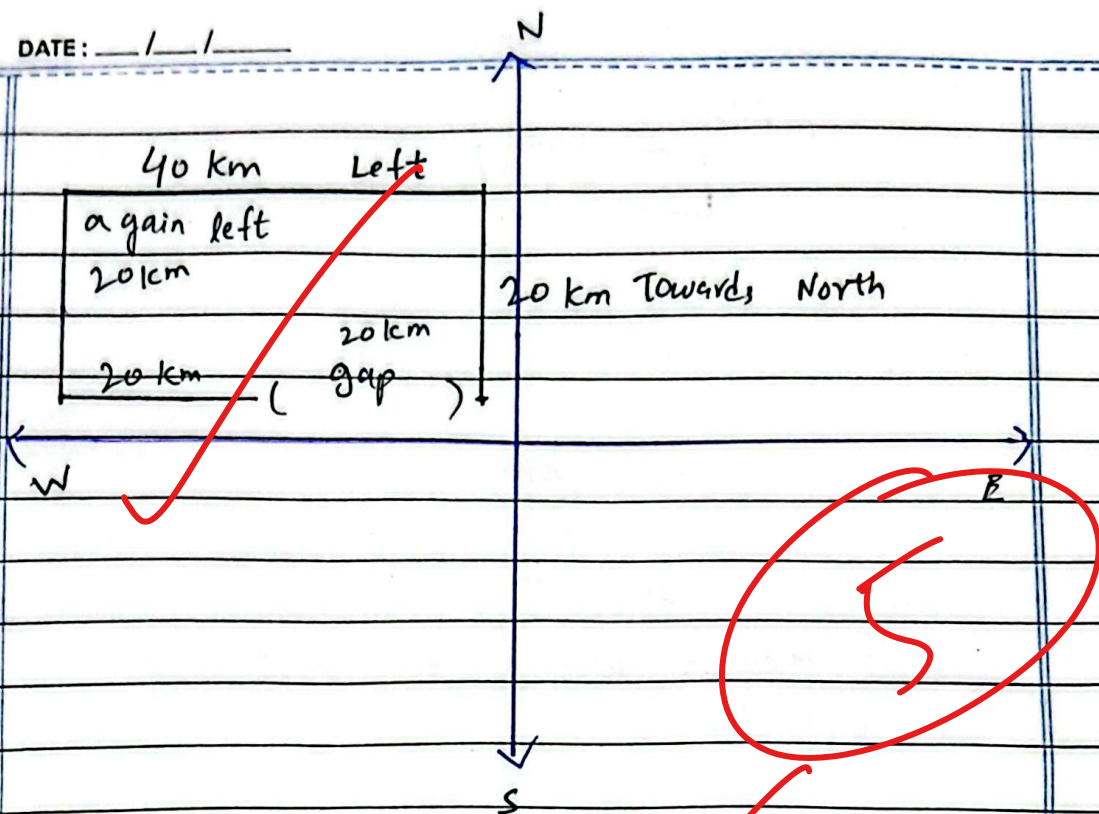
Solution



How far from starting point = 20 km

$$\begin{aligned}\text{Total distance} &= 20 + 40 + 20 + 20 \\ &= 100 \text{ km}\end{aligned}$$

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In which direction he is moving = **East**

Direction of 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 there in the bus initially

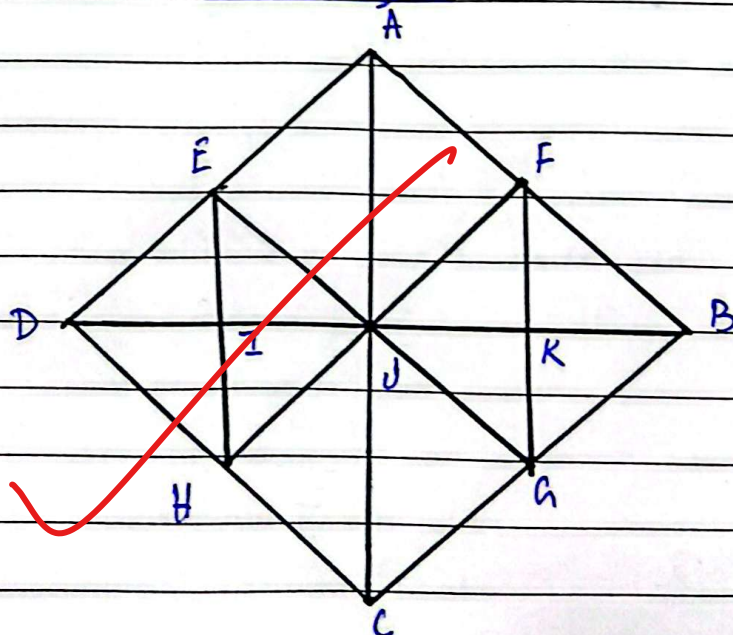
Now, finding total number of passengers initially

$$= 30 + 15$$

$$= 45$$

45 passengers entered the bus initially.

Part (D)



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Solution

Simplest triangles $AFG, FJK, FKB,$
 $BKG, JKG, JCG, HJC, HW, DIH,$
 DEI, EJ, AEJ
 $= 12 \text{ total}$

Triangle with two components $\pm$

$JFB, FBG, BJC, JFG, DES, ESH,$
 DJH, DEH
 $= 8 \text{ total}$

Triangle with three components are:

ADB, JBC, DIC, ADJ
 $= 4 \text{ total}$

Triangle with six components:

PAB, ABC, BCD, ADC
 $= 4 \text{ total}$

Thus,

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

$$= 28$$

ANSWER, there are 28 triangles in the figure.



The
End