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Date: 20.08.24

GSA - Ability Mock

Question 6

- (a) Jan 2022 enrollment: 850 pupils
Jan 2023 enrollment: 1120 pupils

$$\begin{aligned} \text{Percentage increase} \\ &= \frac{\text{New Enrollment} - \text{Old Enrollment}}{\text{Old Enrollment}} \end{aligned}$$

$$= \frac{1120 - 850}{850} \times 100$$

$$= \frac{270}{850} \times 100$$

$$\Rightarrow \text{Percentage Increase} = 31.76\%$$

- (b) Let age of son be "x"
Father's age = 5x

$$\Rightarrow (x-2)^2 + (5x-2)^2 = 114$$

$$\Rightarrow (x-2)^2 = x^2 - 4x + 4$$

$$\Rightarrow (5x-2)^2 = 25x^2 - 20x + 4$$

$$\Rightarrow (x^2 - 4x + 4) + (25x^2 - 20x + 4) = 114$$

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$$26x^2 - 24x + 8 = 114$$

$$26x^2 - 24x - 106 = 0$$

$$\Rightarrow 13x^2 - 12x - 53 = 0$$

$$\text{Quadratic equation } \Rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\Rightarrow \frac{-(-12) \pm \sqrt{(-12)^2 - 4(13)(-53)}}{2(13)}$$

$$\Rightarrow \frac{12 \pm \sqrt{144 + 2756}}{26}$$

$$\Rightarrow \frac{12 \pm \sqrt{2900}}{26}$$

Question seems incorrect \Rightarrow saves A age?

(c) A hen has 1 head and 2 Feet
A cow has 1 head and 4 Feet

Let hen be "x"

Let cow be "y"

eq i) $x + y = 48$

eq ii) $2x + 4y = 140$

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$$y = 48 - x$$

↓

(input in eq 2)

$$\Rightarrow 2x + 4(48 - x) = 140$$

$$\Rightarrow 2x + 192 - 4x = 140$$

$$\Rightarrow -2x = -52$$

$$\Rightarrow x = 26$$

$x \Rightarrow$ Hen, So number of Hen
 \Rightarrow is 26

(d) Car speed \Rightarrow 40 km/h \rightarrow 1st Halt of Journey

Car Speed \Rightarrow 60 km/h \rightarrow 2nd Halt of Journey

$$\underline{\underline{1st\ Halt}} = \frac{\text{Distance}}{2} \Rightarrow D$$

$$\text{Speed} = 40 \text{ km/h} ; \text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Time} = \frac{D/2}{40} = \boxed{\frac{D}{80} \text{ hours}}$$

$$\underline{\underline{2nd\ Halt}} = \frac{\text{Distance}}{2} \Rightarrow D$$

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$$\text{Speed} = 60 \text{ km/hr}$$

$$\text{Time} = \frac{D/2}{60} = \boxed{\frac{D}{120} \text{ hours}}$$

Total Time

$$\frac{D}{120} + \frac{D}{80} = \frac{2D + 3D}{240} = \frac{5D}{240}$$

$$\text{Total time} = \frac{D}{48} \text{ hours}$$

Average Speed

$$= \frac{\text{Total Distance}}{\text{Total Time}} = \frac{D}{D/48}$$

⇒ ⇒ Average Speed for Car is $\boxed{48 \text{ km/h}}$

Question 7

(a) Let number be "x"

$$\Rightarrow \frac{x}{6} \quad (\text{Add } 50) \Rightarrow \frac{x}{6} + 50$$

$$(\text{Total is } 60) \Rightarrow \frac{x}{6} + 50 = 60$$

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$$\frac{x}{6} = 10 \Rightarrow x = 60$$

The number is **60**

(b) The number series reflects the table as:

$$8 \times 1 = 8, \quad 8 \times 2 = 16, \quad 8 \times 3 = 24,$$

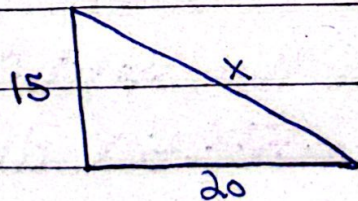
$$8 \times 4 = \boxed{32}$$

The fourth number should have been

32 but it is 34.

⇒ The odd number in the series is **34**

(c) Tower height = 15m
Tower base = 20m



Using the Pythagoras theorem we will find x .

$$x^2 = 15^2 + 20^2 \Rightarrow \text{Ariel distance}$$

$$x^2 = 625 \Rightarrow x = \underline{\underline{25}} \quad \text{Soom top is } \underline{\underline{25m}}$$

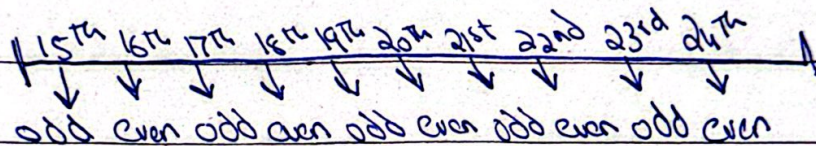
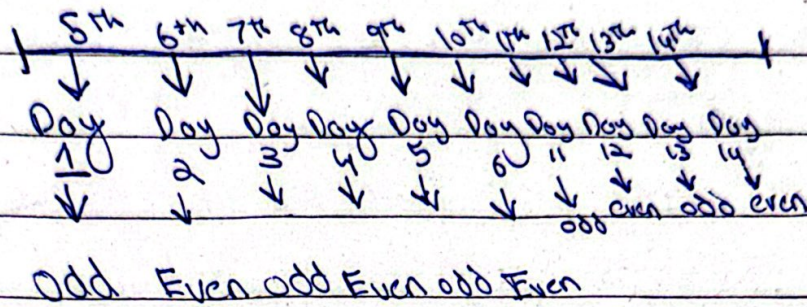
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(cd)

Tariff for odd dates = Rs. 1000

Tariff for even dates = Rs. 2000

Total amount paid = Rs. 30000



10 odd days from 5th date of month

= Rs. 10,000

20 even days from 6th date of month

= Rs. 20,000

⇒

He stayed in the hotel for 20 days from 5th till 24th

Question 8

(a)

(Point know the answers)

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(b) Mixture of milk = 60 litres

Current ratio of milk and water is 2:1

Which means:

$$\text{Milk} = \frac{2}{3} \times 60 = 40 \text{ litres}$$

$$\text{Water} = \frac{1}{3} \times 60 = 20 \text{ litres}$$

(Ratio changed to 1:2)

$$\text{Milk} = \frac{1}{3} \times 60 = 20 \text{ litres}$$

$$\text{Water} = \frac{2}{3} \times 60 = 40 \text{ litres}$$

The new ratio has increased water from 20 litres to 40 litres in the new mixture.

⇒ 20 litres of water is to be further added to obtain 1:2.

(c) i) A is the brother of B = A and B
are
Siblings

ii) B is the sister of C = B and C are
Siblings so A and C are also siblings as
A is brother of C

iii) C is father of D

⇒ Since A is the brother of C,

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and C is the father of D, A is D's
uncle.

⇒ D is A's Nephew, given D
is a male.

(a) Roar ⇒ Urdu

R O A R

U R D U

Working

A B C D E F G H I

J K L M N O P Q R

S T U V W X Y Z

1st Letter = +3

2nd Letter = +2 (1 and 4)

3rd Letter = +2 (2 and 3)

4th Letter = +3

So URDU can be written

as XTEX