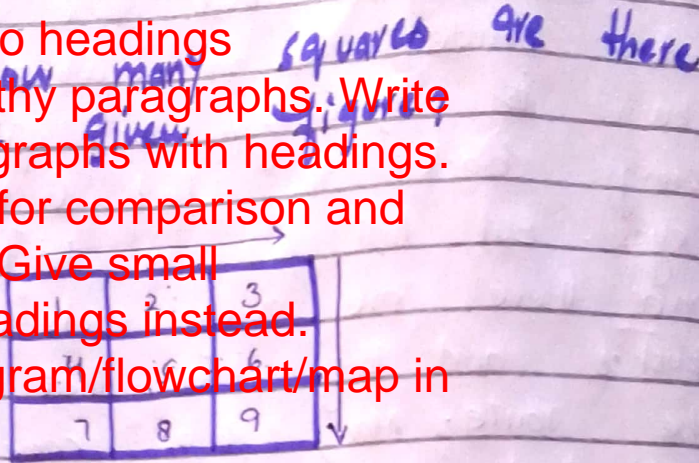


## General Instructions

Q. 8

1. Give numbering to headings
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings.
3. Do not use table for comparison and contrast questions. Give small paragraphs with headings instead.
4. Draw figures/diagram/flowchart/map in every question.
5. Start new question from fresh page.
6. Explain the steps in your mathematical calculations.
7. Do not forget to write the unit of your answer while attempting mathematics questions.
8. Do not use lead pencil. Only blue and black colours are allowed.



Sol.

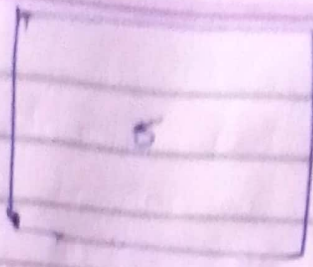
$$\begin{aligned} \text{Rows} &= 3 \\ \text{Col} &= 3 \\ &= 3 \times 3 = 9 \end{aligned}$$

Then

$$\begin{aligned} 2 \times 2 &= 4 \\ \text{Big one square} &= 1 \\ \text{Total} &= 9 + 4 + 1 \end{aligned}$$

Total no. of squares are = 14





That's why  $\rightarrow$  14 Squares in given figure.

(b)

If arithmetic mean of 14 observations

26, 12, 14, 15,  $x$ , 17, 9, 11, 18, 16, 28, 20, 22, 8 is 17.

Find missing observation.

$$A.M. = 17$$

Total no. of observation = 14

Observations are = 26, 12, 14, 15,  $x$ , 17, 9, 11, 18, 16, 28, 20, 22, 8

$$A.M. = \frac{\text{Sum of observations}}{\text{No. of observations}}$$

$$17 = \frac{26 + 12 + 14 + 15 + x + 17 + 9 + 11 + 18 + 16 + 28 + 20 + 22 + 8}{14}$$

$$14 \times 17 = 216 + x$$

$$238 = 216 + x$$

$$x = 238 - 216$$

$x = 22$ , Missing observation is 22.

(C) 4 kg of sugar and 2 kg of flour are needed to be mixed to make 1 kg of laddoo.  
6 kg of sugar and 4 kg of flour are needed to be mixed to make

1 kg Burfi.

How many kg of each type of sweet was manufactured if it is known that 260 kg of sugar and 160 kg of flour were needed?

Sol:

Let us take 'x' for Burfi and 'y' for laddoo.

Then we have equations as:

$$4y + 6x = 260 \quad \text{--- (1)}$$

$$2y + 4x = 160 \quad \text{--- (2)}$$

Then multiply equation (2) with 2. So, we have:

$$2(2y + 4x) = 2 \times 160$$

$$4y + 8x = 320 \quad \text{--- (3)}$$

Subtract equation (1) from (3)

$$4y + 8x = 320$$

$$+ 4y + 6x = 260$$

$$\underline{-} \quad \underline{-} \quad \underline{+}$$

$$2x = 60$$

$$2x = 60$$

$$x = 60/2$$

$$\boxed{x = 30}$$

Put value of  $x$  in eqn ①

$$4y + 6x = 260$$

$$4y + 6(30) = 260$$

$$4y + 180 = 260$$

$$4y = 260 - 180$$

$$4y = 80$$

$$y = 80/4$$

$$\boxed{y = 20}$$

∴ we have :

30 kg Burfi and  
20 kg Ladoo.

(d) Find Complement of set of  
1<sup>st</sup> 4 prime numbers from  
set of 1<sup>st</sup> Ten Natural Number.

Sol:

$N =$  set of natural numbers  $= \{1, 2, 3, \dots, 10\}$

4 Prime nos from  $N = 2, 3, 5, 7$

Complement  $= P' = U - P$

$$P' = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\} - \{2, 3, 5, 7\}$$

$$= \{1, 4, 6, 8, 9, 10\} \text{ --- Ans.}$$

Q. 7

a) A Father is four times the age of his daughter. If after 5 years, he would be three times of daughter's age. then after 5 years, how many times he would be of his daughter's age?

lets take  $x$  as age of daughter

Then

$$\text{Father's age} = 4x$$

After 5 years, he would be three times of daughter's age.

$$4x + 5 = 3(x + 5)$$

$$4x + 5 = 3x + 15$$

$$4x - 3x = 15 - 5$$

$$x = 10$$

So, daughter's age is 10 years.

Father's age is  $4x = 4 \times 10 = 40$  years.

After 5 years,

$$5 + 5 = 10$$

So,

Daughter's Age = 20 years.

Father's Age = 50 years.

Then,

$$50/20 = 2.5 \text{ times}$$

So, Father would be 2.5 years of his daughter's Age.

(b) If the square of the hypotenous of an isosceles right triangle is  $128 \text{ cm}^2$ . Find the length of each side.

Sol:

let take  $h$  as hypotenous.

Then

$$h^2 = 128 \text{ cm}^2$$

Formula

$$h^2 = B^2 + P^2$$

lets take  $B$  and  $P$  as  $x$ .

So,

Diagram?

$$h^2 = x^2 + x^2$$

$$h^2 = 2x^2$$

$$128 = 2x^2$$

$$x^2 = 128/2$$

$$x^2 = 64$$

$$\boxed{x = 8}$$

So, length of each side of isosceles right angle is

8 cm.

## Define

(c)

**I.Q. :** I.Q. means "Intelligence Quotient" which refers to the ability of human problem solving, remembering of matter etc.

**E.Q. :** E.Q. means "Emotional Quotient" which refers to ability to make friends, emotional feelings, be honest, humbleness etc.

**Median:** Median means the mid part of series when it is in some order.

e.g.  $2, 3, 4, 5, 6$   
Median = 4

## Mode:

Mode is the most repeated number in given series.

e.g.  $2, 2, 3, 3, 4, 4, 5, 4, 6, 5, 5$   
Mode = 4, 5

**Range:** Range refers to the difference between highest and lowest number.

e.g.  $9, 7, 4, 2, 8, 1$   
Range =  $9 - 1 = 8$  Ans.



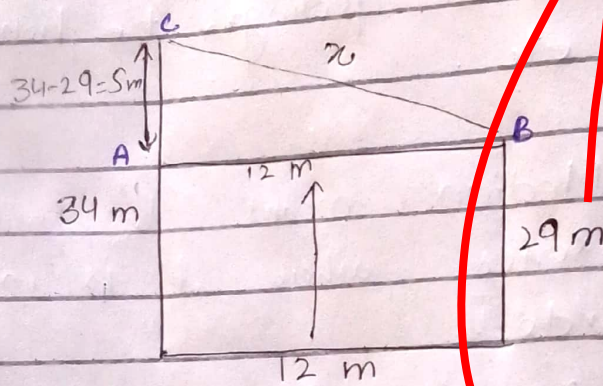
(d)

The height of two buildings are 34 m and 29 m respectively.

If the distance between the two buildings is 12 m.

Find the distance between their tops.

Sol:



let us take the triangle ABC.  
we know that

$$H^2 = B^2 + P^2$$

So,

$$x^2 = (12)^2 + (5)^2$$

$$= 144 + 25$$

$$x^2 = 169$$

$$x = 13 \text{ m}$$

So, The distance between top's of the buildings is 13 m.