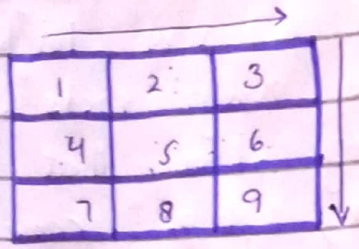
Q.8

(a) How many squares are there in the given figure?



Sol.

Rows = 3

Col = 3

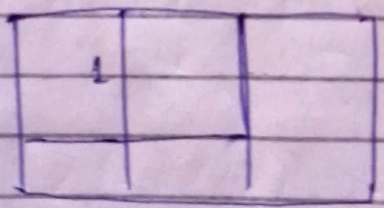
= 3 x 3 = 9

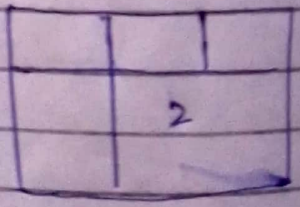
Then 2 x 2 = 4

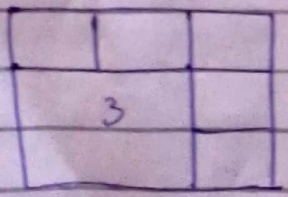
Big (one) square = 1

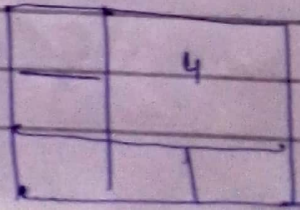
Total = 9+4+1

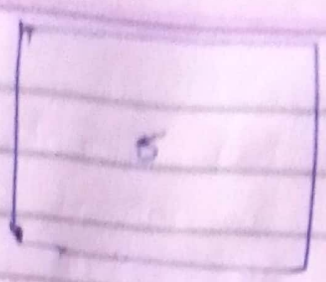
Total no of squares are = 14











That's why → 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

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

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

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

$$238 = 216 + x$$

$$x = 238 - 216$$

$$\boxed{x = 22} \rightarrow \text{Missing observation is } 22$$

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

Then we have equations as:

$$4y + 6x = 260 \quad -①$$

$$2y + 4x = 160 \quad -②$$

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

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

$$4y + 8x = 320 \quad -③$$

Subtract equation ① from ③

$$\begin{array}{r} 4y + 8x = 320 \\ \pm 4y \pm 6x = \pm 260 \\ \hline 2x = 60 \end{array}$$

$2x = 60$

$x = 60/2$

$\boxed{x = 30}$

Put value of x in equ (1)

$4y + 6x = 260$

$4y + 6(30) = 260$

$4y + 180 = 260$

$4y = 260 - 180$

$4y = 80$

$y = 80/4$

$\boxed{y = 20}$

So, we have :

30 kg Burfi and
20 kg Ladoo.

(a) Find Complement of set of 1st 4 prime numbers from set of 1st Ten Natural Number.

Sol:

N = set of natural numbers = {1, 2, 3 --- 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} — 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 futher after 5 years, how many times he would be of his daughters age?

Lets take x as age of daughter

Then

Father's age $= 4x$

After 5 years, he would be three time of daughters age.

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

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

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

$$\boxed{x = 10}$$

So, daughter's age is 10 years.

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

Futher 5 years,

$$5+5 = 10$$

So,

Daughter's Age = 20 years.

Father's Age = 50 years.

Then,

$$50/20 = 2.5$$

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 cm^2. Find the length of each side.

Sol:

let take h as hepotenous.

Then

$$h^2 = 128\ cm^2$$

Formula

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

lets take B and P as x.

So,

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

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

$$128 = 2x^2$$

$$x^2 = 128/2$$

$$x^2 = 64$$

$$\boxed{x = 8}$$

So, length of each side of isosceles right angle is

8 cm.

(5)

Define

I.Q : I.Q means "Intelligence Quotient" which refers to the ability of human problem solving, remembering 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 diffrence between highest and lowest number.

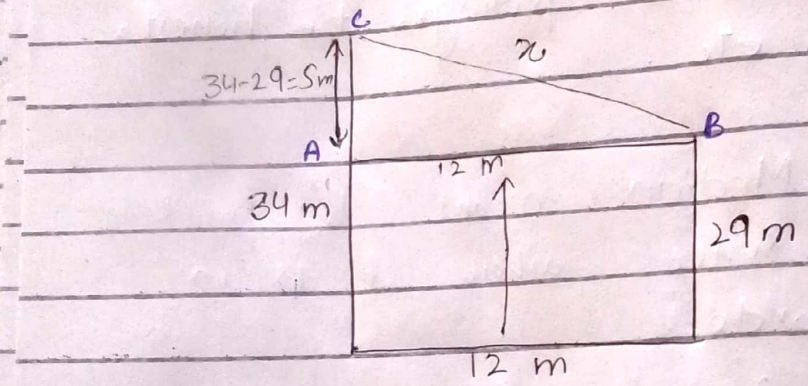
e.g 9, 7, 4, 2, 8, 1

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.