Work on math portion
Attempt other questions too
Theory portion

Q8:

Given Data

BROTHER is written as

QDGSNQA

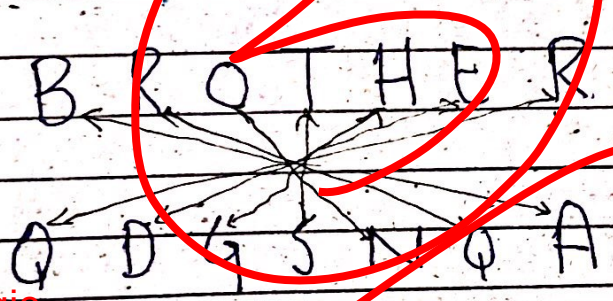
then

SISTER be coded as?

Sol:

We will Find the code of SISTER by observing the nature of pattern in which the word BROTHER has been coded.

So



Write complete logic

The BROTHER has been coded in a reversal order as B is Followed By A in its diagnol position, the same is the case with R and rest of the all words.

Now

SISTER

QDSTJR

Q8(b).

Given Data:

A box contain 12 cards.

Find Probability of

(a) 8 (b) an even number (iii) a perfect square (iv) a negative number (v) a number less than 13.

Sol

(a) Probability = No of events / total sample space

$$P = \frac{1}{12}$$

(b) an even number.

Now even number = 2, 4, 6, 8, 10, 12

So total even number = 6

$$P = \frac{6}{12} = \frac{1}{2}$$

(c) A Perfect Square = 2, 4, 9

total = 3.

$$P = \frac{3}{12} = \frac{1}{4}$$

(d) a negative number.

Sol

→ So there is no negative number. there would not be any scenario.

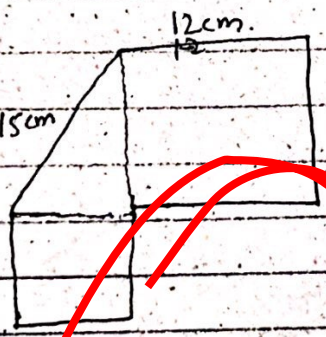
(e) a number less than 13.

Now Probability of a number less than 13. will be.

$$P = \frac{12}{12} = 1$$

Q8(c).

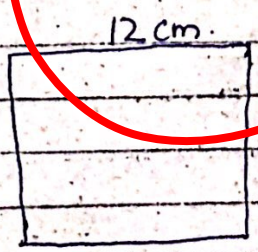
Given Data.



Find total area and Perimeter.

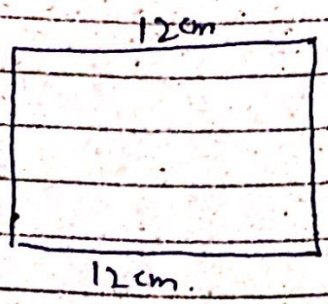
Sol

In the given Figure there are two square and one triangle.



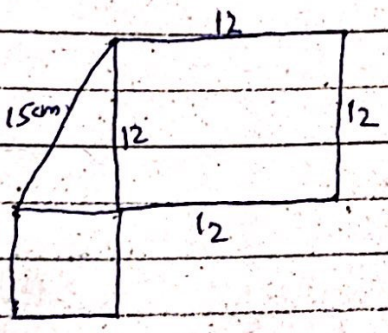
Square 1

We all know that all sides of Squaare are equal.
So,

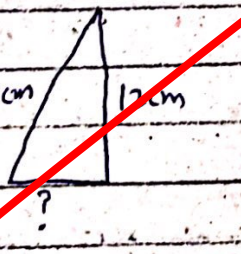


$$\text{Area} = 12^{cm} \times 12cm = 144\ cm^2$$

Now the whole shape will beame.



Now expel out triangle



To find Base we have to use Pythagoras theorm

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

$$(B)^2 = (H)^2 - (P)^2$$

putting value.

$(B)^2 = (15)^2 - (12)^2$

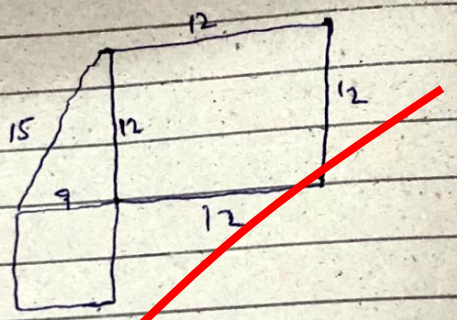
$B = \sqrt{(15)^2 - (12)^2}$

$B = \sqrt{225 - 144}$

$= \sqrt{81}$

$\boxed{B = 9}$

Put this value in the diagram.



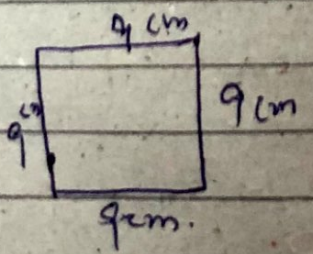
Area of triangle $= \frac{9 \times b}{2}$

$= \frac{12 \times 9}{2} = \frac{54}{2}$

$\therefore$ Area of $\Delta = 54 cm^2$

Now the

Square 2.



Area $= 9 cm \times 9 cm = 81 cm^2$

Now

total area of the figure
$= 144cm^2 + 54cm^2 + 81cm^2$

$= \boxed{279cm^2}$

Now Perimeter = sum of all sides of the figure.

$= 12+12+12+12+15+9+9+9+9$

Perimeter = 99

Q8(d).

Given Data:

Nine Students = 15, 15, 16, 16, 16, 17, 17, 18, 19.

calculate: Mean, Mode, Medium and range

Sol

Mean: Defination

The terms mean basically implies the sum of all numbers divide by the total numbers. It is some times called Average.

Now the mean of the above number will be:

$$\frac{15+15+16+16+16+17+17+18+19}{9}$$

$$\text{Mean} = \frac{149}{9} = 16.55$$

Medium: Medium is basically the middle value of numbers. In the given Question.

Medium = 15, 15, 16, 16, 16, 17, 17, 18, 19

Medium = 16

Mode.

Mode is the most repeating or occuring value in the list.

In the given Question

Mode = 15, 15, 16, 16, 16, 17, 17, 18, 19

So the most repeated value = 16

Range:

Range is basically the difference b/w maximum value and minimum value.

In the given Question

Range = Maximum value - Minimum value

= 19 - 15

= 4.

Q 7(a)

Given Data:

Hall capacity = 400 seat.

occupied seats = 325.

Find: Attendence at a percent of capacity

Sol

Now attendence at a percent will be

$$= \frac{\text{seats occupied}}{\text{total seats}} \times 100$$

$$= \frac{325}{400} \times 100$$

$$= \frac{81.25}{\cancel{325}} \times \cancel{100}$$

$$= \boxed{81.25\%}$$

Q7 (b).

Given Data:

Scenario 1: Person = 30

Sugar = 40kg.

days = 10.

Scenario 2:

Person = 80.

Sugar = 320kg.

days = ?

Now we can solve this with the help of ratio.

Persons	Sugar	days
30	40 kg	10
80	320 kg	x

Now converting this into equation form

$$\frac{x}{10} = \frac{320}{40} \times \frac{30}{80}$$

$$\frac{x}{10} = 3$$

$$x = 30$$

So 30 days will be required for 80 persons to use 320 kg of sugar

Q.7(c).

Given Data:

travel to South = 5 km.

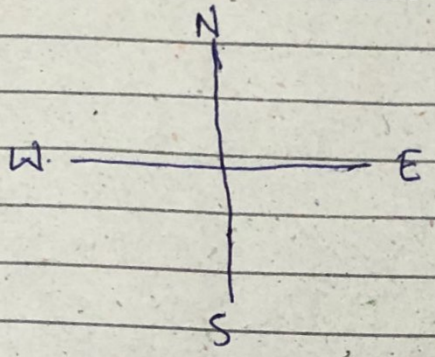
West = 3 km

North = 4km.

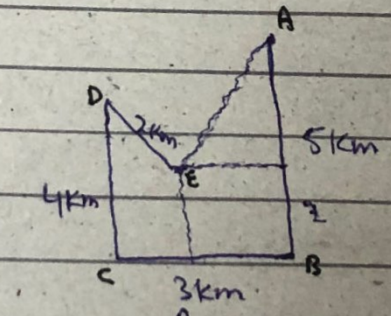
South-East = 2km.

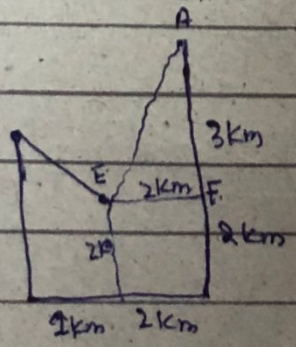
Find: How far is the crow from initial Points?

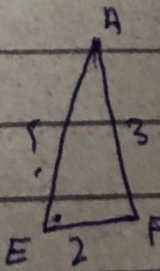
Sol We can make the diagram



By applying conditions







by using pythagoras theorm.

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

$(H)^2 = \sqrt{(3)^2 + (2)^2}$

$(H)^2 = \sqrt{9+4}$

$(H)^2 = \sqrt{13}$.

So the car will be by far from the initial point by the distance of $\sqrt{13}$.

Q 7 (d).

Given data:

Radius = 10 cm.

Height = 36 cm.

Volum = ?

Sol

Volume of cylinder = $\frac{4\pi r^3}{h}$

putting valule

$$\frac{4 \times 3.14 \times (10\,cm)^3}{36}$$

$$= \frac{12.56 \times 1000}{36}$$

$$= \frac{12560}{36}$$

Volume = 3488.88 cm^3