

①

Q8:

Q

Given Data

BROTHER is written as

Q D G S N Q A

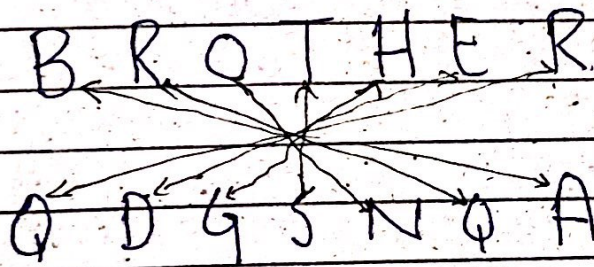
then

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



The BROTHER has been coded in a reversed order as B is followed by A in its diagonal position, the same is the case with R and rest of the all words.

Now

SISTER

Q D S T J R

2
Q8(b).

Given Data:

A box contains 12 cards.

Find Probability of

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

Sol

(i) Probability = $\frac{\text{No of events}}{\text{total sample space}}$

$$P = \frac{8}{12}$$

(ii) an even number.

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

So total even number = 6

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

(iii) A Perfect Square = 1, 4, 9

total = 3

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

3

(1) a negative number.

Sol

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

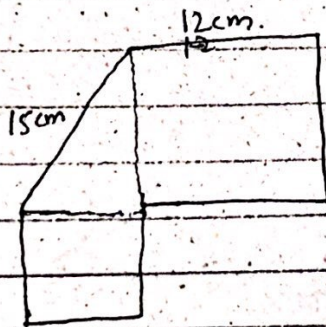
(2) a number less than 13.

Now probability of a number less than 13 will be.

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

Q8 (c).

Given Data.

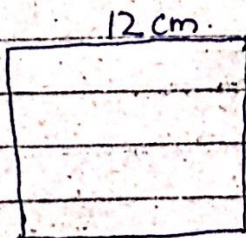


Find total area and perimeter.

Sol

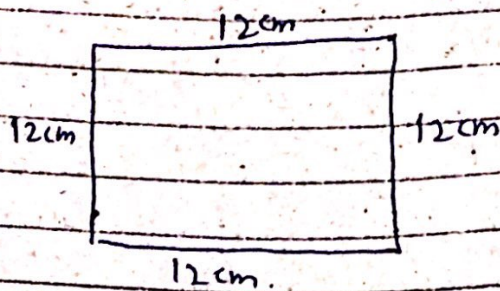
In the given figure there are two squares and one triangle.

Square 1



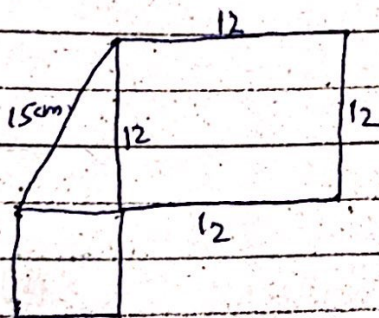
(4)

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

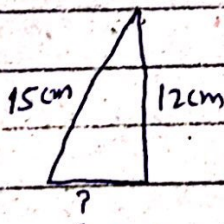


$$\text{Area} = 12 \text{ cm} \times 12 \text{ cm} = 144 \text{ cm}^2$$

Now the whole shape will become



Now expel out triangle



To find Base we have to use
Pythagoras theorem

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

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

putting value.

③

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

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

$$B = \sqrt{225 - 144}$$

$$= \sqrt{81}$$

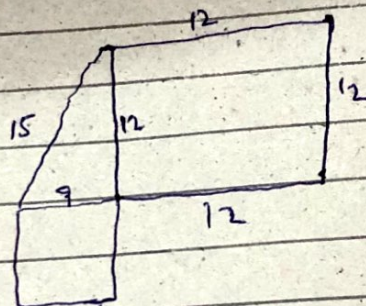
Find

$$B = 9$$

put this value in the diagram.

Now

Se



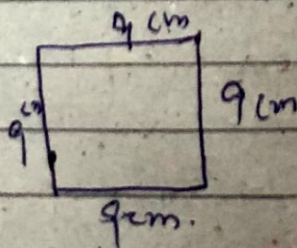
$$\text{Area of triangle} = \frac{a \times b}{2}$$

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

$$\therefore \text{Area of } \Delta = 54 \text{ cm}^2$$

Now the

Square 2.



$$\text{Area} = 9 \text{ cm} \times 9 \text{ cm} = 81 \text{ cm}^2$$

Now

⑥

$$\begin{aligned} \text{Total area of the figure} &= 144 \text{ cm}^2 + 54 \text{ cm}^2 + 81 \text{ cm}^2 \\ &= \boxed{279 \text{ cm}^2} \end{aligned}$$

Now Perimeter = sum of all sides of the figure.

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

$$\text{Perimeter} = 99.$$

Q 8(d).

Given Data:

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

calculate: Mean, Mode, Median, and range.

Sol

Mean: Definition

The term Mean basically implies the sum of all numbers divide by the total numbers. It is sometimes called Average.

Now the mean of the above number will be:

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

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

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Median: Median is basically the middle value of numbers.
In the given question.

$$\text{Median} = 15, 15, 16, 16, 16, 17, 17, 18, 19$$

$$\text{Median} = 16$$

Mode.

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

In the given question

$$\text{Mode} = 15, 15, 16, 16, 16, 17, 17, 18, 19$$

$$\text{So the most repeated value} = 16$$

Range:

Range is basically the difference between maximum value and minimum value.
In the given question

$$\begin{aligned} \text{Range} &= \text{Maximum value} - \text{Minimum value} \\ &= 19 - 15 \end{aligned}$$

$$= 4$$

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Q7(a)

Given Data:

Hall capacity = 400 seat.

occupied seats = 325.

Find: Attendance at a percent of capacity

Sol

Now attendance at a percent will be

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

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

$$= \frac{81.25}{1}$$

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

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

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.

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(Q.7(c))

Given Data:

Travel to South = 5 km.

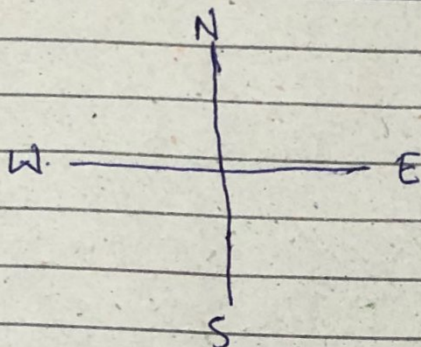
West = 3 km

North = 4 km.

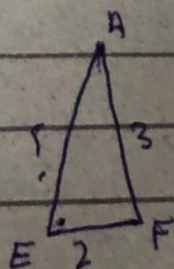
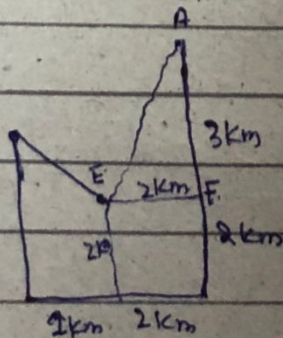
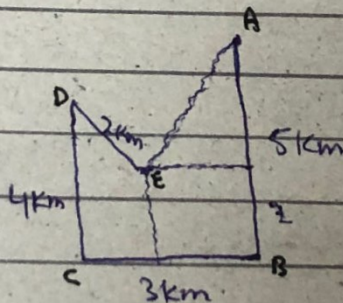
South-East = 2 km.

Find: How far is the crow from initial points?

Sol We can make the diagram



By applying conditions



(11)

by using Pythagoras theorem.

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

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

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

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

So the ^{crowd} 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.

Volume = ?

Sol

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

putting value.

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

$$36$$

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

$$36$$

$$= \frac{125600}{36}$$

$$36$$

$$\text{Volume} = 3488.88 \text{ cm}^3$$