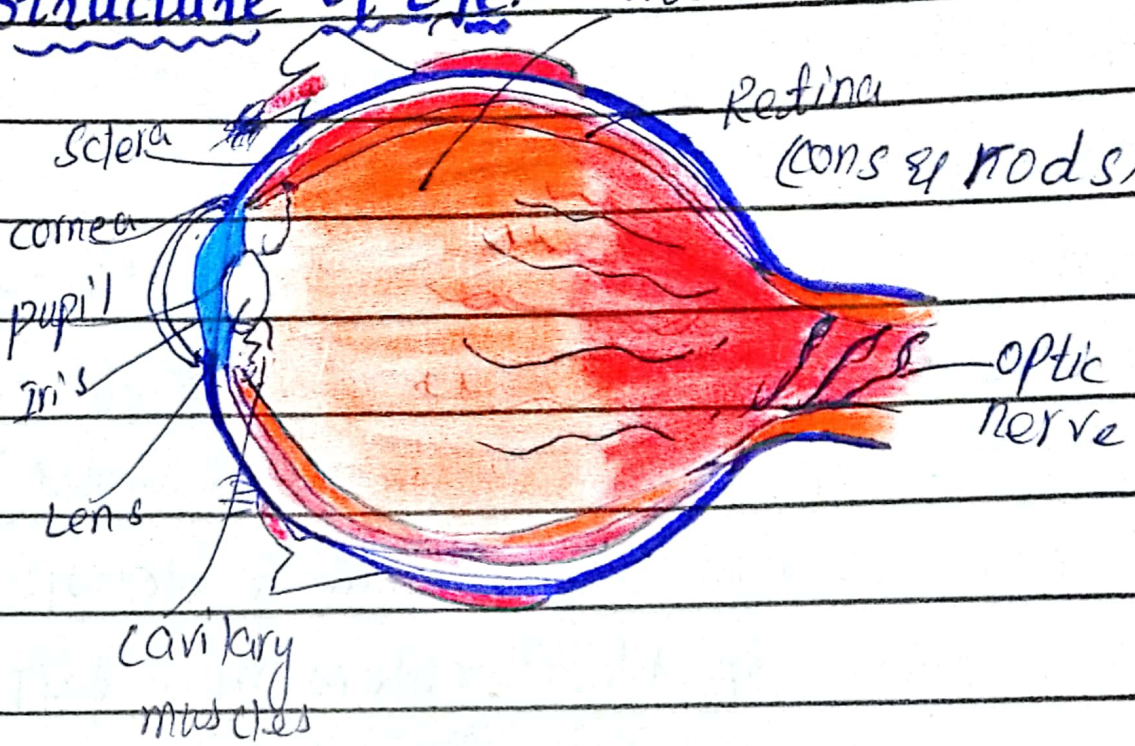
QUESTION: 2

c) **Structure of Eye:-**



Its human sensory organ, provision of sensory information, basically we see through it, visualize & make image of objects.

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CORNEA:-

Its outermost transparent layer, its responsible for bending (bending) of light rays.

IRIS:- Its blue colour pigment which controls the movement of pupil.

Pupil:- small hole from where light enters into eye

Lens:- Reception of light, responsible for focusing of light rays.

Retina:-

sensitive layer of human eye, most light focused on retina. Retina have cones & nodes which are called photoreceptors. Recepter change the light into image formation. Retinal red line, this is the optic nerve.

Optic nerve:- It transmit the image towards the brain

Choroid / capillary muscles.

Capillaries are present into choroid capillaries contain blood.

choroid is for the nourishment of eyes.

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Sclera = White part (for protection of eye)

Vitreous humour:-

Inside eye fluid filled part. It balances and maintain the food inside the eye.

Aqueous humour:-

Frontal side. fluid filled part. where vessels supply isn't possible nourishment is possible by this.

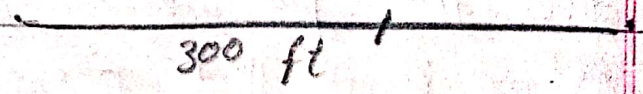
Vitreous humor	**Aqueous humor**
It provides nutrients to your eye & help you eye keep its shape. It sticks to your retina at the back of your eye and lets light in	provides nutrients to eye as well as maintain the eye in pressurized state.
substance Its gel-like ~~fluid~~ substance lies behind the lens in front of retina	It water like fluid and lies in front of lens

Question: 2:-

d) flow chart of brain.

Q.6

a) A farmer cuts a 300 ft. fence into two pieces of different sizes. The longer piece should be four times a long as the shorter piece. How long are two pieces.



Let the length of shorter piece = x

$\Rightarrow$ length of longer piece = $4x$

as total fence was 300 ft.

So we can write

$$x + 4x = 300$$

$$5x = 300$$

$$x = \frac{300}{5}$$

$$x = 60 \text{ ft.}$$

Hence length of shorter piece = 60 ft.

so length of longer piece = $4(60)$

$= 240$ ft.

b) If a rectangle has a length that is three more than twice the width and the perimeter is 20 inches. What are the dimensions of rectangle?

Let x & y are the width

and length of rectangle respectively

if length is three more than twice the width $\Rightarrow y = 2x+3$ — (i)

$2x - y = -3$

given that perimeter = 20 inches

as we know perimeter of rectangle

$= 2(\text{length} + \text{width})$

$\Rightarrow 2(x+y) = 20$

$x + y = 10$ — (ii)

from (i) & (ii)

$2x - y = -3$

$x + y = 10$

$3x = 7 \qquad x = \frac{7}{3} = 2.33$ inches

Put in (ii)

$y = 10 - \frac{7}{3}$

$y = \frac{30-7}{3}$

$y = \frac{23}{3} = 7.66\ldots$ inches

hence length is 7.66 inches & width is 2.33 inches.

2.33
3 | 7
6
10
9
1

7.66
3 | 23
21
20
18
20

C)

A cricket team won 60% of total matches played during the year. If it lost 24 matches in all & no match was drawn find the number of matches played during the year.

Solution:-

Let the total matches played during year $= x$

won matches $=$ 60% of x

$$= \frac{60}{100}(x) = \frac{3}{5}x$$

As no match was drawn hence

lost matches $= x - \frac{3}{5}x$

$$= \frac{5x - 3x}{5} = \frac{2x}{5}$$

as given that lost matches $= 24$

$$\Rightarrow \frac{2x}{5} = 24$$

$$x = \frac{24 \times 5}{2} = 60$$

Hence 60 matches were played totally during the year.

60
24
36

36/60 Not

d)

Two number are in the ratio 3:2. If two is added to the 1st & 6 is added to the second number. they are in the ratio 4:5. Find the numbers.

Solution:-

Let the two numbers which are in ratio 3:2 are x & y respectively.

$$\Rightarrow \quad x : y = 3 : 2$$

$$\Rightarrow \frac{x}{y} = \frac{3}{2} \quad \text{---(i)}$$

$$2x = 3y \quad \text{---(ii)}$$

If two is added in 1st no. & 6 is added in 2nd number they are in ratio 4:5

$$\Rightarrow \quad x+2 : 6+y = 4 : 5$$

$$\frac{x+2}{6+y} = \frac{4}{5}$$

$$5(x+2) = 4(6+y)$$

$$5x+10 = 24+4y$$

$$5x = 24-10+4y$$

$$5x = 4y+14$$

$$5x - 4y = 14 \quad \text{---(iii)}$$

from eq (ii)

$$2x = 3y$$

$$2x - 3y = 0 \quad \text{---(iv)}$$

multiply eq(iv) with 5 & eq(iii) with (ii)

$$10x - 15y = 0$$
$$-10x + 8y = 20$$
$$7y = -28 \Rightarrow \boxed{y = -4}$$

Put in (ii)

$$2x = 3(-4)$$
$$2x = -12$$
$$\Rightarrow \boxed{x = -6}$$

hence first number is -6 & second number is -4.

Question: 7:

a) A concert hall 400 seats of which 325 are occupied. Express attendance at a percent of capacity.

Solution:-

total seats (capacity) = 400

occupied seats (attendance) = 325

so attendace at capacity percentage

$$= \frac{325}{400} \times 100 = \frac{325}{4}\% = 81.25\%$$

81.25
4 | 325
32
5
4
10
8
20
20

c)

If 30-person use 40kg of sugar in 10 days Find in how many days 80 person will use 320kg of sugar.

Solution:-

persons	sugar (kg)	days
30 ↓	40 ↑	10 ↑
80 ↓	320	x

$$x : 10 :: \begin{bmatrix} 320 : 40 \\ 30 : 80 \end{bmatrix}$$

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

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

$$x = \frac{320 \times 3}{32}$$

$$x = 30$$

hence 80 persons will take 30 days to use 320kg of sugar.

d)

If radius of a cylinder is 10cm & height is 36cm. Find the volume of cylinder

$r = 10cm \qquad h = 36cm$

Volume $= \pi r h$.

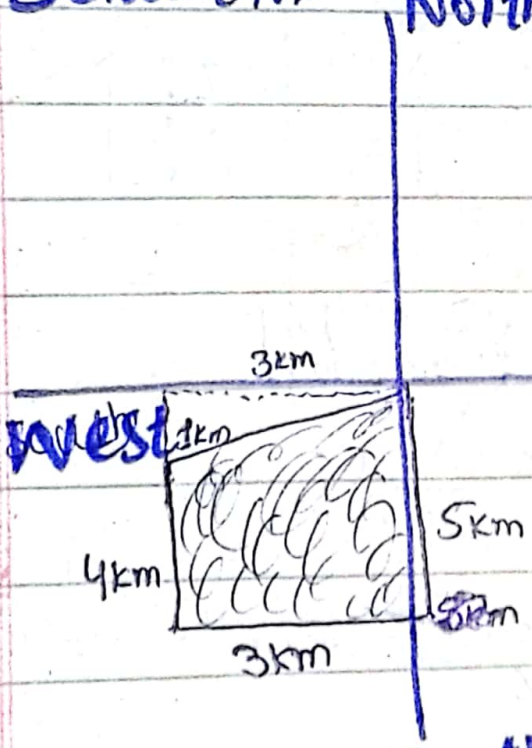
$= 10 \times 36 \times 3.14$

$= 360 \times 3.14 = 1130.4\ cm^3$

c)

A crow tavels south 5km, and then 3km west and then 4km north. Finally travels 2km south-east. How far is the crow from initial point

Solution:-



1+3 = 4 km

he is 4km far from initial Point.

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

Question: 8:-

a) In a certain language, BROTHER is written as @DGSNQA, then in the same language SISTER is written as?

Solution

B R O T H E R

@ D G S N Q A

This Alphabetical series will be written in reverse Coding.

1st letter R is 1 step backward
2nd letter E is 1 step backward
3rd letter H is 1 step backward
4th letter T is 1 step backward
5th letter O is 1 step backward
6th letter R is 1 step backward
7th letter O is 1 step backward

Hence SISTER will be written as @DSRHR.

b)

A card is drawn at random from a box containing 12 cards numbered 1, 2, 3, 4, 5, ... , 12. Find the

i) probability of drawing 8.

$$P(8) = \frac{\text{Possibility of occuring 8}}{\text{maximum outcome.}}$$

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

ii) probability of drawing an even num

Even number b/w 1 to 12 = 2, 4, 6, 8, 10, 12

Hence possible outcome = 6

maximum outcome = 12

so $P(E) = \frac{6}{12} = \frac{1}{2}$

where E shows's even numbers Event.

iii) probability of drawing a perfect square.

perfect squares between 1 to 12

= 1, 4, 9

Hence possible outcome = 3

maximum outcome = 12

so $P(S) = \frac{3}{12} = \frac{1}{4}$

where S is the event of drawing perfect squares.

iv) drawing a negative number.

Let "N" shows the event of negative numbers.

as there is no negative number b/w 1 to 12. Hence

favourable outcome = 0

total outcome = 12

$$P(N) = \frac{0}{12} = 0$$

v) drawing a number less than 13.

Let "F" show the event of number less than 13.

as there ~~lies~~ are 1, 2, 3, ..., 12 numbers less than 13.

Hence, favourable outcome = 12

total outcome = 12

$$P(F) = \frac{12}{12} = 1.$$

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d) Nine students having ages 15, 15, 16, 16, 16, 17, 17, 18, 19. calculate mean, median, mode & range of their ages & also define these terms.

Mode:

The most repeated value in a data is called its mode.

15 occurs 2 times, 16 occurs 3 times; 17 occurs 2 times, 18 & 19 occurs one time.

Hence **mode = 16**

Median:-

When a given data is in its arranged form either in increasing or decreasing order. The value in the middle is called its median.

15, 15, 16, 16, 16, 17, 17, 18, 19
1 2 3 4 5 6 7 8 9

as the middle value is 16.

Hence 16 is its median.

Mean.

The average value of data is called mean

Mean of given data is

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

$$= \frac{149}{9} = 16.55\ldots$$

(2)
30
~~98~~
34
18
19
149

$9\overline{)149}$ (16.
9
59
54
50

Range:- It is the difference b/w maximum and minimum value of data.

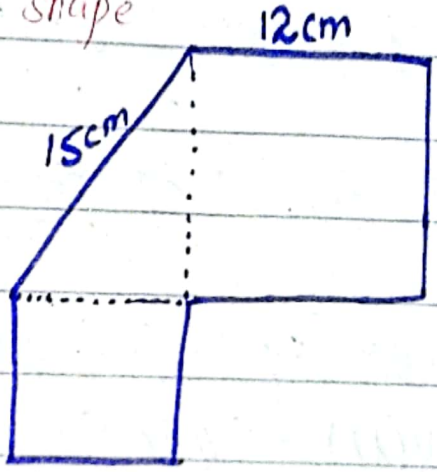
maximum value = 19

minimum value = 15

Range = 19 - 15

= 4.

c) Calculate the total area and perimeter of the given shape



This shap consists of two squares and triangle

Area of bigger squar = l x l = 12 x 12 = 144cm²

Area of triangle = ?

Hypotaneous = 15cm , perpandicular = 12cm

base = ?

$$\text{base} = \sqrt{(\text{Hyp})^2 - (\text{Per})^2}$$

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

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

$$= \sqrt{81}$$

base = 9

Area of triangle = $\frac{1}{2}bh$

$= \frac{1}{2}(9 \times 12)$

$= 9 \times 6$

$= 54 cm^2$

Area of smaller square = $L_1 \times L_2$

$L_2 = 9cm$

Area of smaller square = 9×9

$= 81 cm^2$

144
54
81
279

total area of figure = 81 + 54 + 144

$= 279 cm^2$

perimeter of bigger square = 4L

$= 4(12) = 48cm$

9_2
48
0

perimeter of smaller square = $4L_2$

$= 4(9) = 36cm$

perimeter of triangle = b+h+p

$= 9+15+12$

$= 36cm$

Hence total perimeter = 36 + 48 + 36

$= 120cm$