QUESTION:2

C) ## Structure of Eye:-

vitreous
Sclera
cornea
pupil
iris
Lens
Retina
(cons & rods)
optic
nerve
cavilary muscles
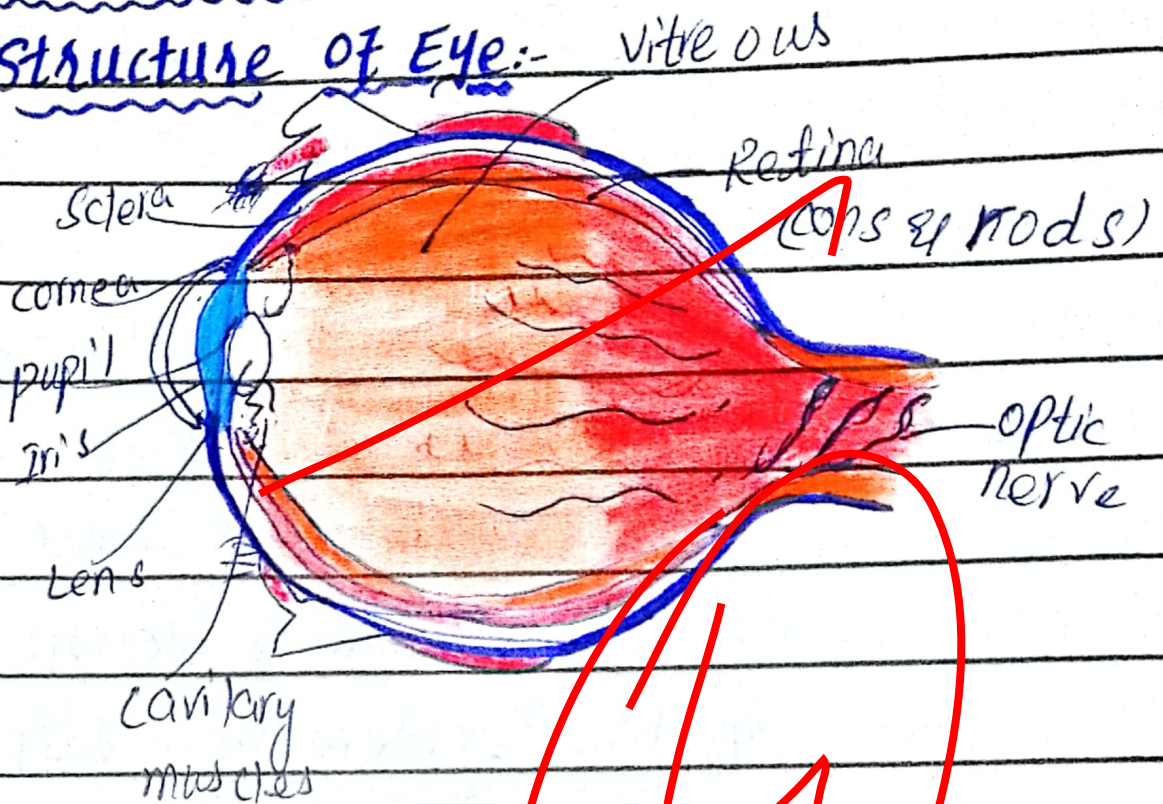
Its human sensory organ provision of sensory information, basically we see through it, visualize & make image of objects.

CORNEA:-

Its outermost transparent layer, Its responsible for bend (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:-

senstive 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 sed time, this is the optic nerve.

Optic nerve:- It transmit the image towards the brain.

Choroid / capillary muscles.

Capillaries are present into chroid capillaries contain blood. choroid is for the nourishment of eyes.

Sclera : White part (for protection of eye)

Vitreous hurmur :-

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

Aqueous hurmur :-

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

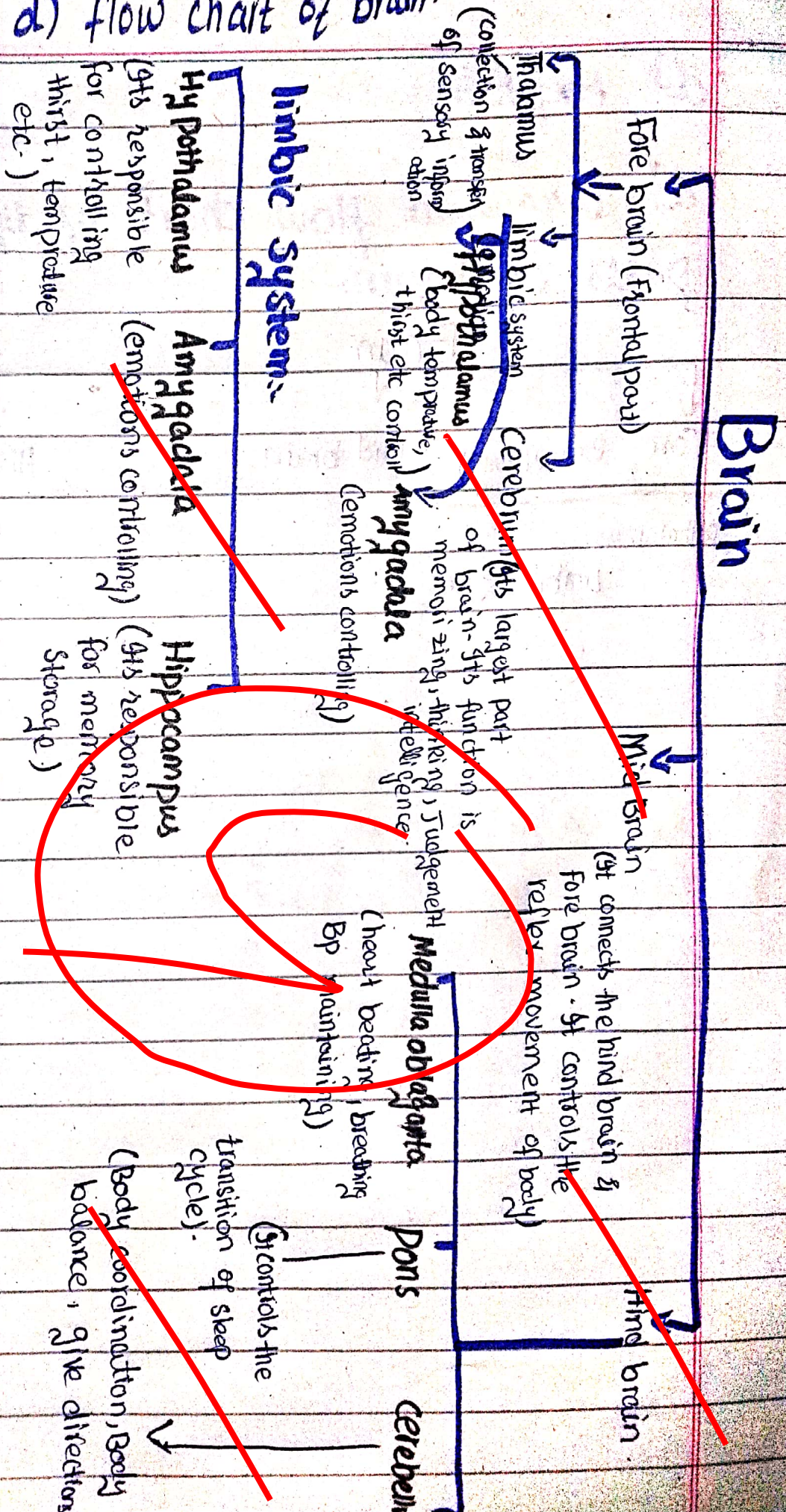| Vitreous humor	Aqueous humor
It provides nutrient to your eye & help you eye keep its shap. It sticks to your rotina at the back of your eye and lets light in	provides nutrients to eye as well as maintain the eye in pressurized state.
Its gel-like. substance lies behind the lens in front of rodina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

@Question: 2:-
d) flow chart of brain.

Brain

Fore brain (Frontal part)

Thalamus
(collection & transfer of sensory inform action)

limbic System

Hypothalamus
(body temprature, thirst etc control)

Cerebrum (Its largest part of brain- Its function is memorizing, thinking, Judgement intelligence)

Mid Brain
(It connects the hind brain & fore brain · It controls the reflex movement of body)

Hind brain

Medulla oblagata
(heart beating, breathing, Bp maintaining)

Pons
(It controls the transition of sleep cycle).

Cerebellum
(Body coordination, Body balance, give direction etc.)

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limbic System:-

HyPothalamus
(Its responsible for controlling thirst, temprature etc.)

Amygadala
(emotions controlling)

Hippocampus
(Its responsible for memory storage)

Amygadala
(emotions controlling)

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.

$$300 \text{ ft}$$

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 $= 4(60)$
$$= 240 \text{ ft.}$$

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

$2x - y = -3$

given that perimeter = 20 inches

a. we know perimeter of rectangle
. = 2(length + width)

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

$x + y = 10$ ——— (ii)

from (i) & (ii)

$$2x - y = -3$$
$$x + y = 10$$
$$\overline{3x = 7}$$

$x = \dfrac{7}{3} = 2.33$ inches

Put in (ii)

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

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

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

hence lenghe is 7.66 inches
& width is 2.33 inches .

$\begin{array}{r} 2.33 \\ 3\,\overline{)7} \\ \underline{6} \\ 10 \\ \underline{9} \\ 1 \end{array}$

$\begin{array}{r} 7.66 \\ 3\,\overline{)23} \\ \underline{21} \\ 20 \\ \underline{18} \\ 20 \end{array}$

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.

$\frac{60}{24}$
$\frac{36}{}$

$\frac{36}{60} \times 100$

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.

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

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

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

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)

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

Put in (ii)
$$x = 3(-4)$$
$$2x = -12$$
$$\implies \boxed{x = -6}$$

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 attendance at capacity percentage

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

$$4\overline{)325}\;\;(81.25$$
$$\underline{32}$$
$$5$$
$$\underline{4}$$
$$10$$
$$\underline{8}$$
$$20$$
$$\underline{20}$$
$$0$$

b) 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

$$x : 10 :: \left[\begin{matrix} 320 : 40 \\ 30 : 80 \end{matrix} \right]$$

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

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

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

$$x = 30$$

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

$r = 10cm \qquad h = 36cm$
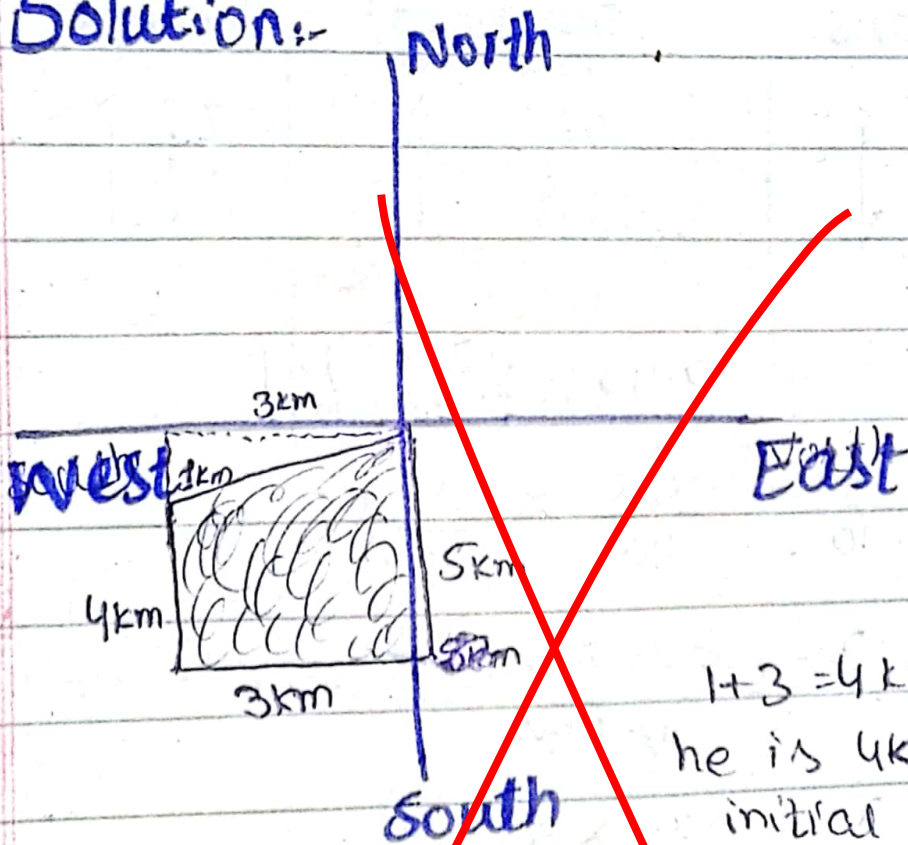
Volume $= \pi r h$.

$= 10 \times 36 \times 3.14$

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

c)

A crow travels 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.

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 number

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 show's even number's 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 are 1, 2, 3, ..., 12 numbers less than 13.

Hence, favourable outcome = 12

total outcome = 12

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

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 $\boxed{\text{mode} = 16}$

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.

$$\underset{\underset{1}{}\ \underset{2}{}\ \underset{3}{}\ \underset{4}{}\ \underset{5}{}}{\underline{15, 15, 16, 16, 16,}} \underset{\underset{6}{}\ \underset{7}{}\ \underset{8}{}\ \underset{9}{}}{\underline{17, 17, 18, 19}}$$

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

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

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

Range:-

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

$$\begin{array}{r} 30 \\ 48 \\ 48 \\ 34 \\ 18 \\ 19 \\ \hline 149 \end{array}$$

$$\begin{array}{r} 16. \\ 9\overline{)149} \\ \underline{9} \\ 584/50 \end{array}$$

maximum Value = 19

minimum Value = 15

Range = 19 - 15

$\qquad$ = 4.

c) calculate the total area and perimeter of the given shape
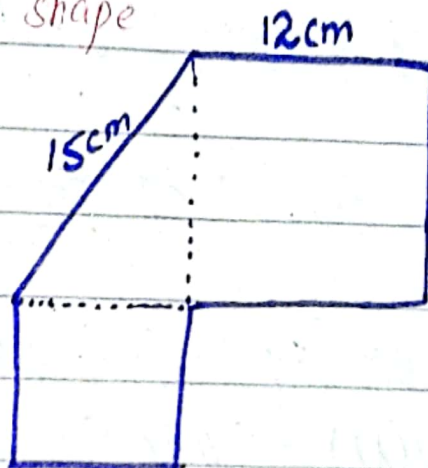
12cm

15cm

This shap consists of two squares and triangle.

Area of bigger squar = L × L = 12 × 12 = 144cm²

Area of triangle = ?

Hypotaneous = 15cm , perpandicular = 12cm

base = ?

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

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

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

$$= \sqrt{81}$$

base = 9

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

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

$\qquad = 9 \times 6$

$\qquad = 54 \, cm^2$

Area of smaller square $= L_1 \times L_2$

$L_2 = 9 \, cm$

Area of smaller square $= 9 \times 9$

$\qquad = 81 \, cm^2$

$\begin{array}{r} 144 \\ 54 \\ 81 \\ \hline 279 \end{array}$

total area of figure $= 81 + 54 + 144$

$\qquad = 279 \, cm^2$

Perimeter of bigger square $= 4L$

$\qquad = 4(12) = 48 \, cm$

$\begin{array}{r} 2 \\ 48 \\ \hline 0 \end{array}$

perimeter of smaller square $= 4L_2$

$\qquad = 4(9) = 36 \, cm$

perimeter of triangle $= b + h + P$

$\qquad = 9 + 15 + 12$

$\qquad = 36 \, cm$

Hence total perimeter $= 36 + 48 + 36$

$\qquad = 120 \, cm$