

(SECTION – B)

- Q. 6. (a)** A telephone company charges initially Rs.0.50 and then Rs. 0.11 for every minute. Write an expression that gives the cost of a call that lasts N minutes. (5)

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GENERAL KNOWLEDGE-I (GENERAL SCIENCE & ABILITY)

- (b)** Find the missing number in the series below (5)

(i) 1, 8, 4, 27, 9, ?

(ii) 3, 6, 8, 16, 18, ?

(iii) 2, 8, 512, ?

(iv) 81, 9, 64, 8, ?, 12

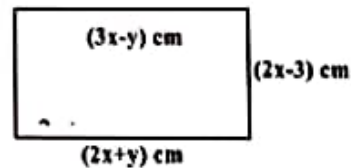
(v) 6, 11, 21, 36, 56, ?

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- (c)** The perimeter of the rectangle given below is 114 cm. Find the area of the rectangle. (5)



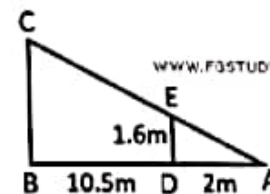
- (d)** Ahmad stands at point D, 2m in front of a spotlight at point A. He is 1.6m tall and is facing the wall of a building which is 10.5m away from him. How tall (BC) is his shadow on the wall of the building. (5)(20)

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- Q. 7 (a)** Ali is standing 10 meters away from a tree. The distance of his eyes from his feet is 1.5 meter. Given that the distance from his eyes to the top of the tree is 15 meters, find the height of the tree. (5)

- (b)** Find out the correct word from the jumbled spellings given below. (5)
LNUGEF, CKANS, CIREFE, EERAANMOGTP, MNIKPPU.

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- (c)** Draw and write the total number of lines of symmetry in a regular hexagon and octagon. How many lines of symmetry are there in a circle? (5)

- (d)** The height of the Egyptian pyramid is 146.6 meters and a base length is 230.6 meters. Find the volume of that pyramid. (5)(20)

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Q6(a) charges for 1st minute of call = 0.50

" " rest of call = 0.11

Expression for call that last 'N' minutes

$$0.5 + 0.11 \times N = \text{Total charges}$$

(b) Missing number series.

i. 1, 8, 4, 27, 9, 64.

$$1^3 = 1$$

$$1 \div 1 = 1$$

$$2^3 = 8$$

$$8 \div 2 = 4$$

$$3^3 = 27$$

$$27 \div 3 = 9$$

$$4^3 = 64$$

ii. 3, 6, 8, 16, 18, 36.

$$3 \times 2 = 6$$

$$6 + 2 = 8$$

$$8 \times 2 = 16$$

$$16 + 2 = 18$$

$$18 \times 2 = 36$$

iii. 2, 8, 512, 134217728.

$$2^3 = 8$$

$$8^3 = 512$$

$$512^3 = 134217728$$

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$$81, 9, 64, 8, \underline{144}, 12$$

$$81 \div 9 = 9$$

$$64 \div 8 = 8$$

$$144 \div 12 = 12$$

$$6, 11, 21, 36, 56, \underline{81}$$

$$6 + 5 = 11$$

$$11 + 10 = 21$$

$$21 + 15 = 36$$

$$36 + 20 = 56$$

$$56 + 25 = 81$$

Area From Perimeter.

Perimeter of rectangle = $P = 114 \text{ cm}$

one side = $(2x - 3) \text{ cm}$

other 3 sides are equal in a

rectangle i.e.

$$3x - y = 2xy$$

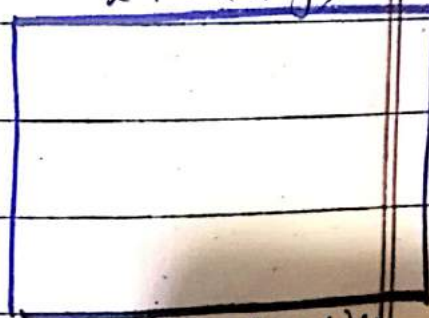
$$3x - 2x = y + y$$

$$x = 2y$$

so

$$P = 2l + 2b$$

$$l_1 = (3x - y) \text{ cm}$$



$$l_2 = (2x + y) \text{ cm}$$

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Perimeter of a rectangle is

$$P = 2l + 2b$$

$$114 = 2l + 2b$$

$$114 = 3x - y + 2x + y + 2(2x - 3)$$

$$114 = 3x - y + 2x + y + 4x - 6$$

$$114 = 9x - 6$$

$$\Rightarrow 9x - 6 = 114$$

$$9x = 114 - 6$$

$$\frac{9x}{9} = \frac{108}{9}$$

$$\boxed{x = 12}$$

As we know that parallel sides of a rectangle are equal hence

$$l_1 = l_2$$

$$3x - y = 2x + y$$

$$\text{as } x = 12$$

$$3 \times 12 - y = 2 \times 12 + y$$

$$36 - y = 24 + y$$

$$36 - 24 = y + y$$

$$12 = 2y$$

$$\Rightarrow y = \frac{12 \times 6}{2} \Rightarrow \boxed{y = 6}$$

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Now, finding values of breadth and length

$$\text{Breadth} = b = 2x - 3 = 2 \times 12 - 3 = 24 - 3$$

$$b = 21 \text{ cm}$$

$$\text{length} = l_1 = 3x - y = 3 \times 12 - 6 = 36 - 6$$

$$l_1 = 30 \text{ cm}$$

$$\text{length} = l_2 = 2x + y = 2 \times 12 + 6 = 24 + 6$$

$$l_2 = 30 \text{ cm}$$

$$\text{so } l_1 = l_2 = l = 30 \text{ cm}$$

$$\text{Area of Rectangle} = l \times b$$

$$= 30 \times 21$$

$$\text{Area} = 630 \text{ cm}^2$$

LENGTH OF SHADOW

According to given

condition, two triangles

i.e. $\triangle ABC$ & $\triangle ADE$

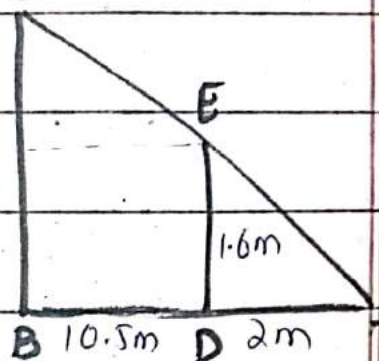
are similar as per

Triangular theorem. So, their corresponding

sides have an equal ratio i.e.

$$\frac{AD}{AB} = \frac{DE}{BC}$$

Now, putting values



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$$\frac{2}{(10.5+2)} = \frac{1.6}{BC}$$

$$\frac{2}{12.5} = \frac{1.6}{BC}$$

$$\Rightarrow BC = \frac{1.6 \times 12.5}{2} = \frac{200}{50} = 25.5$$

$$BC = 2 \times 5$$

$$BC = 10 \text{ m}$$

So, shadow casted by Ahmed on wall BC will be 10 m in length.



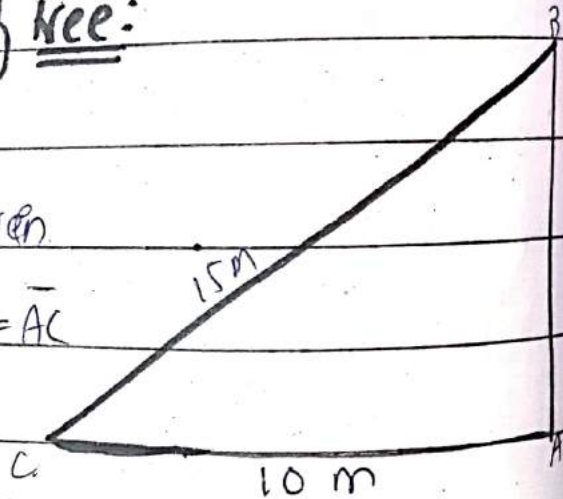
Q7. Height of tree:

Given:

1- Distance between

Ali and tree = \overline{AC}

= 10 m



2- Distance of Ali's eyes

from tree = $\overline{BC} = 15 \text{ m}$

3- To find = ?

Height of tree = $\overline{AB} = ?$

According to Pythagorean Theorem.

$$(\text{Hypotenuse})^2 = (\text{Base})^2 + (\text{Perpendicular})^2$$

i.e.

$$(\overline{AB})^2 = (\overline{AC})^2 + (\overline{AB})^2$$

putting values

$$(15)^2 = (10)^2 + (\overline{AB})^2$$

or

$$(\overline{AB})^2 = (15)^2 - (10)^2$$

$$(\overline{AB})^2 = 225 - 100$$

$$(\overline{AB})^2 = 125$$

Taking $\sqrt{\quad}$ on both sides.

$$\sqrt{(\overline{AB})^2} = \sqrt{125}$$

$$\overline{AB} = 11.18 \text{ m}$$

so height of the tree is 11.18 m.

CORRECT WORDS

LNUGEF

ENGULF

CRANS

SNACKS

CIREFE

FIERCE

EERANMOGFP

POMEGRANATE

MNIKPOU

PUMPKIN.

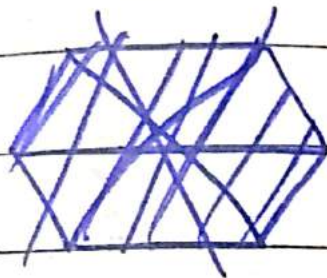
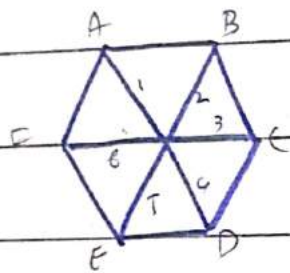
LINES OF SYMMETRY.

A line dividing the object into equal parts is known as a line of symmetry. It passes through the center of the object.

NUMBER OF LINES OF SYMMETRY IN

1- HEXAGON:

A hexagon is a shape with 6 equal sides. i.e.

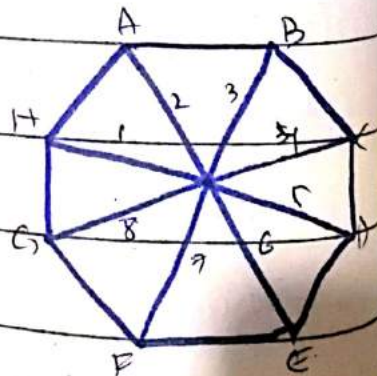


A hexagon has 6 lines of symmetry. i.e. line 1, 2, 3, 4, 5, 6.

2- OCTAGON:

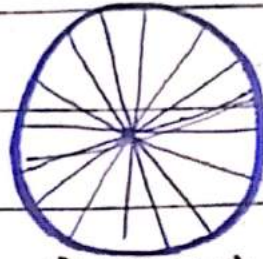
A shape with 8 equal sides is called octagon i.e.

An octagon has 8 lines of symmetry.



3- CIRCLE:

Infinite number of lines can pass through center of circle and divide it into equal parts, thus, it has infinite lines of symmetry.



VOLUME OF EGYPTIAN PYRAMID:

Height of Pyramid = $h = 146.6 \text{ m}$.

Baselength = $b = 230.6 \text{ m}$.

Volume of pyramid = $V = ?$

As pyramid is a triangular shape so area of a volume of Pyramid is.

$$V = \frac{1}{3} A \times h$$

where $A = \text{area}$; $h = \text{height}$.

$$\text{Area of pyramid} = \frac{1}{2} b \times h$$

so

$$A = \frac{1}{2} b \times h = \frac{1}{2} \times 230.6 \times 146.6$$

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$$\text{Area } = A = \cancel{108709.92} \quad 10902.98$$

Now,

$$\text{Volume of Pyramid} = V = \frac{1}{3} A \times h$$

$$V = \frac{1}{3} \times 10902.98 \times 1466$$

$$V = 825,992.29 \text{ m}^3$$

X ——— X