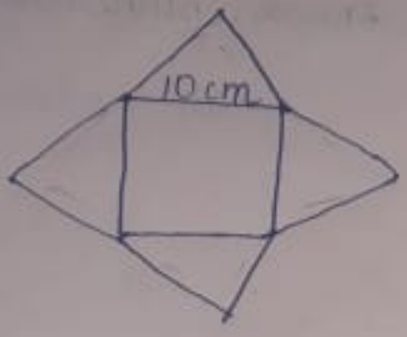
The perimeter of the base of square pyramid is 40 cm and the total height of all its edges is 92 cm. Calculate the surface area.

Ans:-



Square side = $\frac{\text{perimeter}}{4}$

$= \frac{40}{4}$

$= 10\text{cm}$

No. of edges = 12.

4 edges = 40 cm

Remains = 8 edge.

8 edges = 92 - 40

= 52.

1 edge = $\frac{52}{8} = 6.5$ cm.

Using pythagoras we can find height of pyramid,

height $= \sqrt{(6.5)^2 - (5)^2}$

$= \sqrt{(42.25) - 25}$

$= \sqrt{17.25} \approx \sqrt{17} = 4.12$

height = 4.12.

Area $= (\frac{1}{2} bb) 4 + a^2$

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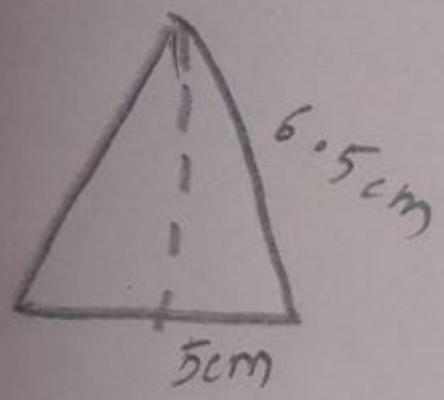

$$\text{height} = \sqrt{(6.5)^2 - (5)^2}$$

$$= \sqrt{(42.25) - 25}$$

$$= \sqrt{17.25} \approx \sqrt{17} = 4.12$$

$$\text{height} = 4.12.$$

$$\text{Area} = \left(\frac{1}{2} bb\right) 4 + a^2$$

$$= \left(\frac{1}{2} \times 10 \times 4.12\right) \times 4 + 10 \times 10$$

$$= 82.4 + 100$$

$$= 182.4 \text{ cm}^2.$$