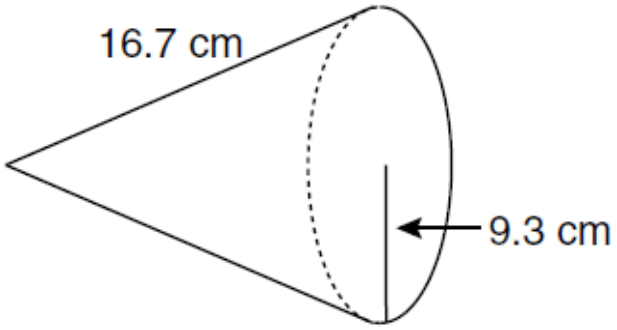
Pyramids and Cones

1. Determine the surface area of a cone with a radius of 9.3 cm and a slant height of 16.7 cm.

Step 1: Draw and label a diagram.

The radius is 9.3 cm.
The slant height is 16.7 cm.



Step 2: Choose the appropriate surface area formula.

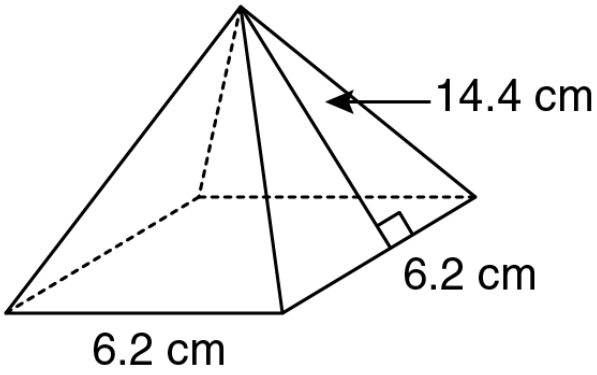
$$SA_{cone} = \pi r^2 + \pi rs$$

Step3: Calculate the surface area.

$$\begin{aligned} SA_{cone} &= \pi(9.3\ cm)^2 + \pi(9.3\ cm)(16.7\ cm) \\ &= \pi \times 86.5\ cm^2 + 487.9\ cm^2 \\ &= 271.7\ cm^2 + 487.9\ cm^2 \\ &= 759.6\ cm^2 \end{aligned}$$

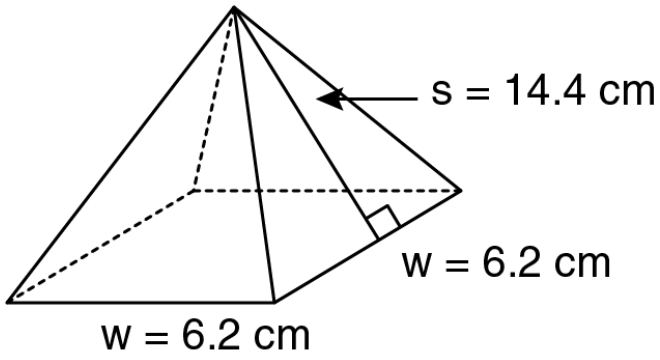
The surface area of the cone is approximately 759.6 cm^2.
If 3.14 is used for π, the surface area of the cone is approximately 759.3 cm^2.

2. Determine the surface area of the pyramid.



Step 1: Label the diagram.

The base length is 6.2 m.
The base width is 6.2 m.
The slant height is 14.4 m.



Step 2: Choose the appropriate surface area formula.

$$SA_{rectangular\ pyramid} = w^2 + \frac{1}{2}ws + \frac{1}{2}ws + \frac{1}{2}ws + \frac{1}{2}ws$$

$$SA_{rectangular\ pyramid} = w^2 + 2ws$$

Step 3: Calculate the surface area.

$$SA_{rectangular\ pyramid} = (6.2\ m \times 6.2\ m) + 2(6.2\ m \times 14.4\ m)$$
$$= 38.44\ m^2 + 2(89.28\ m^2)$$
$$= 217\ m^2$$