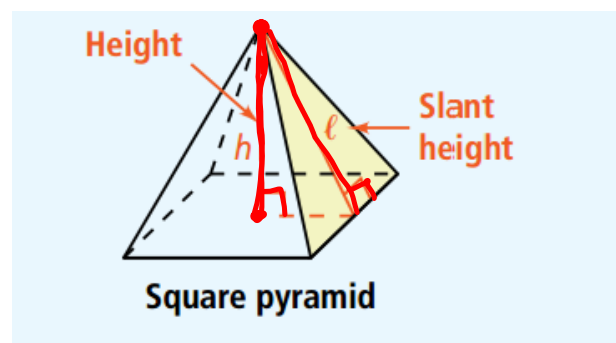
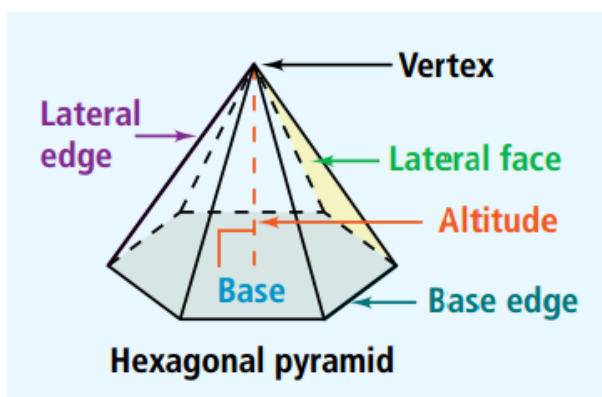


11.3 Surface Area of Pyramids & Cones

Pyramid: polyhedron with a polygon base and triangular lateral faces which meet at a common vertex

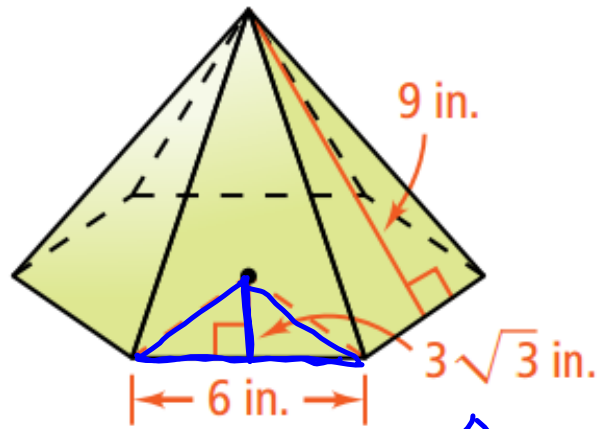
Slant height: l the length of the altitude of a lateral face



Ex 1 | a) find the lateral area.

b) find the base area.

c) find the surface area.



a.

$$\frac{1}{2}(6)(9) \cdot 6$$

$$162 \text{ in}^2$$

b. area of a polygon

$$A_p = \frac{1}{2} a p$$

$$A_p = \frac{1}{2} (3\sqrt{3}) (\overset{3}{6} \cdot 6)$$

$$= 54\sqrt{3} \text{ in}^2$$

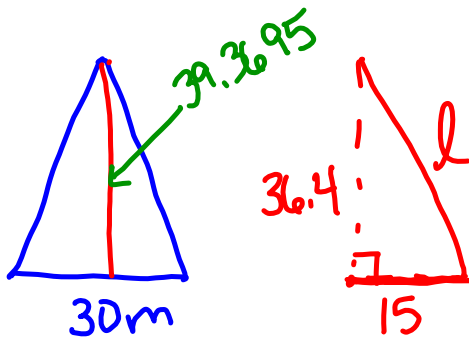
$$c: SA = LA + B$$

$$= 162 + 54\sqrt{3}$$

$$= \boxed{255.5 \text{ in}^2}$$

Ex 2)

Social Studies The Pyramid of Cestius is located in Rome, Italy. Using the dimensions in the figure below, what is the lateral area of the Pyramid of Cestius? Round to the nearest square meter.



$$15^2 + 36.4^2 = l^2$$

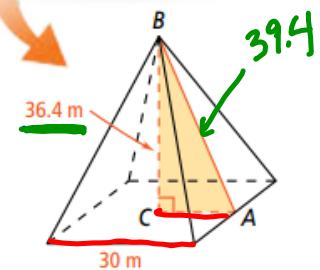
$$225 + 1324.96 = l^2$$

$$1549.96 = l^2$$

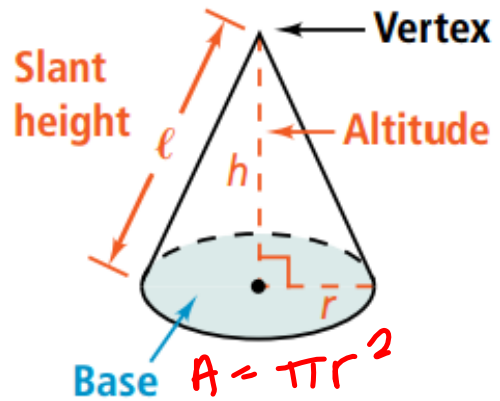
$$39.3695 = l$$

$$LA = 4 \left(\frac{1}{2} \cdot 30 \cdot 39.3695 \right)$$

$$2362 \text{ m}^2$$



Cone: A 3-D object with one circle base.



$LA = \pi r l$

$SA = \pi r l + \pi r^2$

take note

Lateral and Surface Areas of a Cone

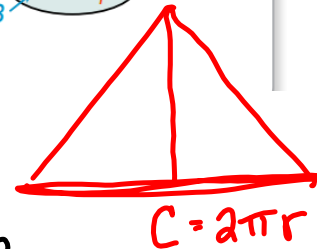
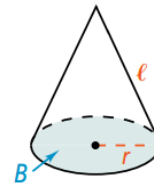
The lateral area of a right cone is half the product of the circumference of the base and the slant height of the cone.

L.A. = $\frac{1}{2} \cdot 2\pi r \cdot l$, or L.A. = $\pi r l$

The surface area of a cone is the sum of the lateral area and the area of the base.

S.A. = L.A. + B

$\frac{1}{2} (2\pi r) l$
 $\pi r l$



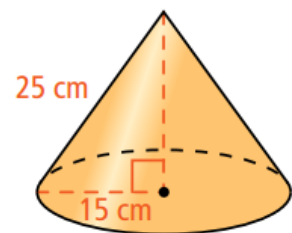
Ex 3 | What is the Surface area of the cone in terms of π?

$SA = \pi r l + \pi r^2$

$= \pi(15)(25) + \pi(15)^2$

$375\pi + 225\pi$

600π



$r = 15$
 $l = 25$

Ex 4

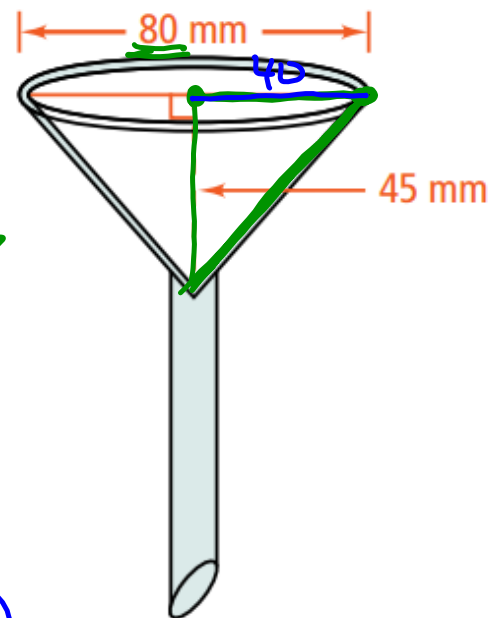
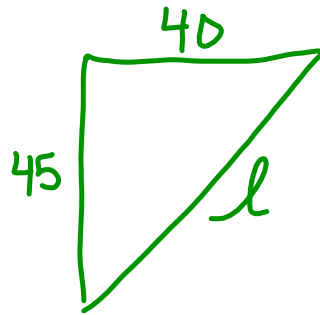
Chemistry In a chemistry lab experiment, you use the conical filter funnel shown at the right. How much filter paper do you need to line the funnel?

$$LA = \pi r l$$

$$l^2 = 40^2 + 45^2$$

$$l^2 = 3625$$

$$l = 60.20797$$



$$LA = \pi (40)(60.20797)$$

$$7,566 \text{ mm}^2$$

