

Warm Up

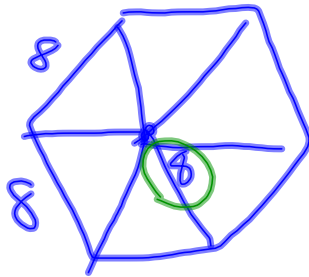
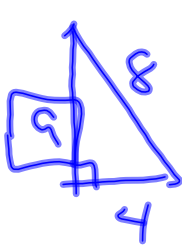
1. Find the area of a circle with radius 4 in.

$$\uparrow 4^2 \quad 16\pi$$

2. Find the circumference of a circle with radius 6 in.

$$12\pi$$

3. Find the area of a regular hexagon with radius 8 cm.

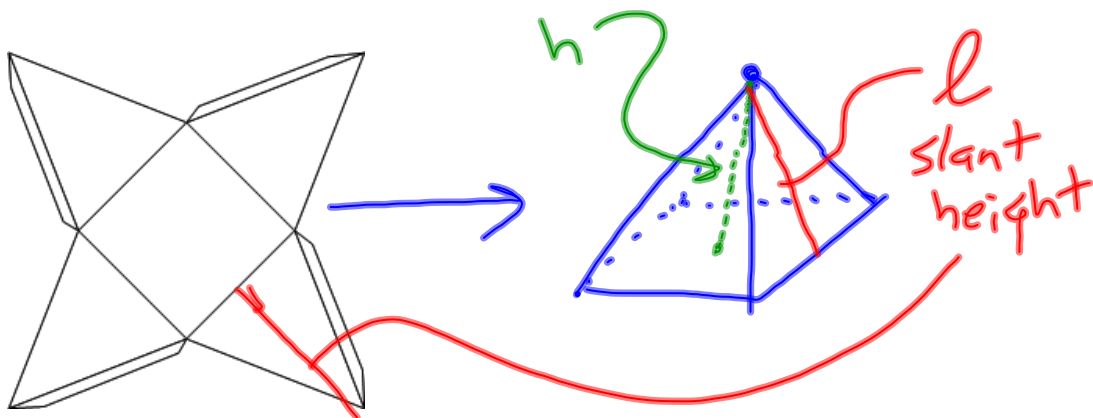


$$A = \frac{1}{2} \cdot a \cdot P$$

$$\Rightarrow 9 \cdot 48$$

12-3 Surface Area of Pyramids and Cones

Regular Pyramid - regular polygon as a base, segment connecting vertex and center of base is perpendicular to the base



Surface area of a Regular Pyramid -

$$S.A. = B + \frac{1}{2} \cdot P \cdot l$$

base \nearrow

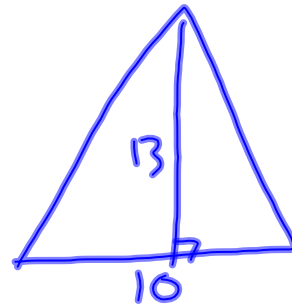
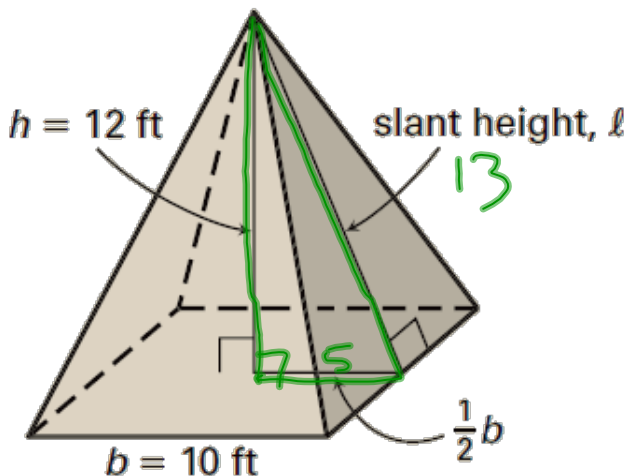
perim. \uparrow

slant
height \uparrow

Surface area of a Right Cone -

$$S.A. = B + \frac{1}{2} \cdot C \cdot l$$

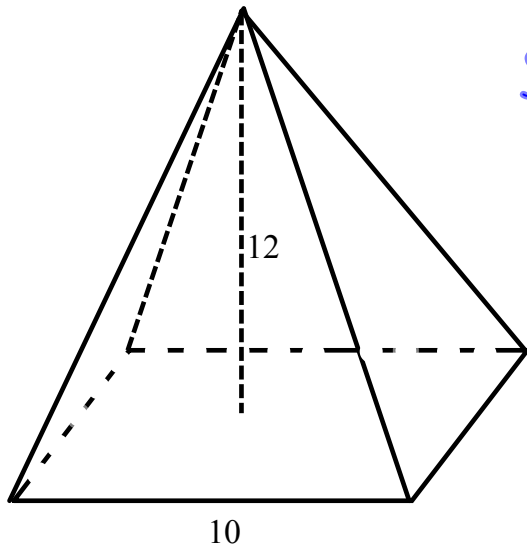
Ex. 1 Find the area of each lateral face of the regular pyramid.



$$\begin{aligned} A &= \frac{1}{2} \cdot b \cdot h \\ &= \frac{1}{2} \cdot 10 \cdot 13 \\ &= 65 \text{ ft}^2 \end{aligned}$$

$$SA = 100 + 4(65)$$

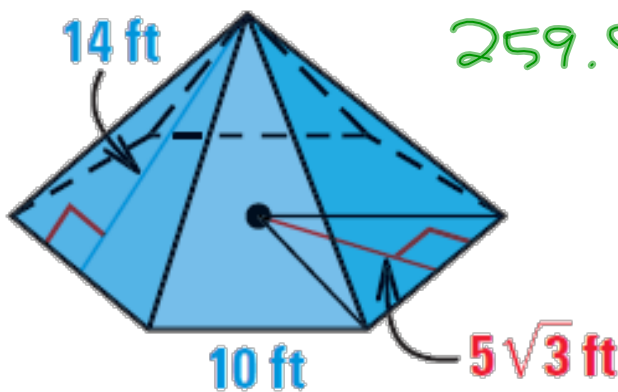
Ex 2 Find the surface area of the regular square pyramid.



$$S.A. = 100 + 4(65)$$

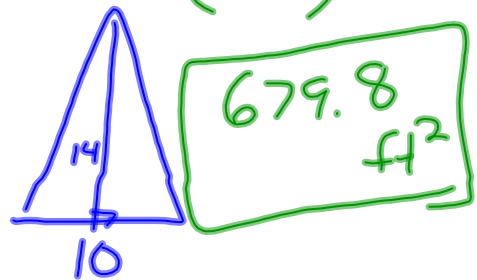
$$= 360 \text{ ft}^2$$

Ex. 3 Find the surface area of the regular pyramid.

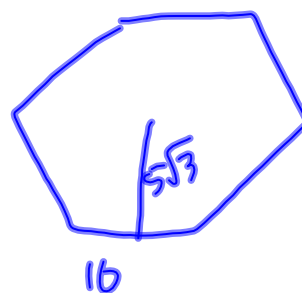


Base + 6(side)

$$259.8 + 6(70)$$



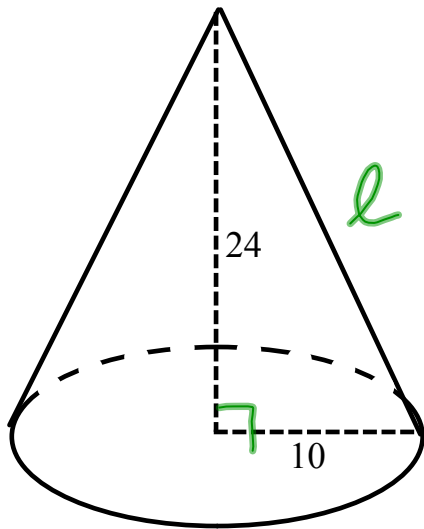
$$679.8 \text{ ft}^2$$



$$A = \frac{1}{2} \cdot a \cdot P$$

$$= \frac{1}{2} \cdot 5\sqrt{3} \cdot 60$$

Ex 4 Find the surface area of the right cone.



$$S.A. = B + \frac{1}{2} \cdot C \cdot l$$

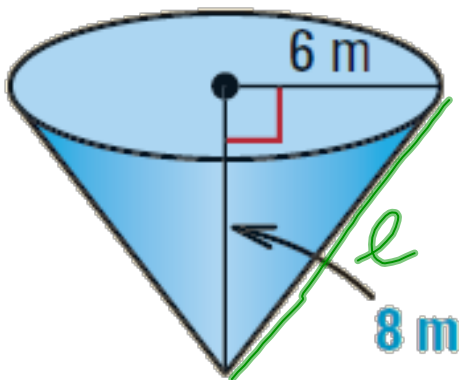
$$100\pi + \frac{1}{2} \cdot 20\pi \cdot 26$$

$$100\pi + 260\pi$$

$$360\pi$$

$$\approx 1131$$

Ex. 5 Find the surface area of the right cone.



$$S.A. = B + \frac{1}{2} \cdot C \cdot l$$

$$36\pi + \frac{1}{2} \cdot 12\pi \cdot 10$$

$$36\pi + 60\pi$$

$$96\pi \text{ m}^2$$

$$301.5 \text{ m}^2$$

Ex 6 A right cone with a base of radius 4 inches and a regular pyramid with a square base both have a slant height of 5 inches. Both solids have the same surface area. Find the length of a base edge of the pyramid.