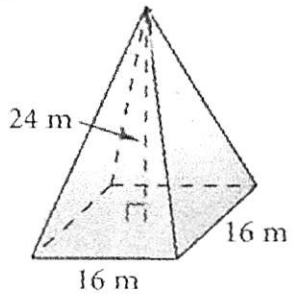
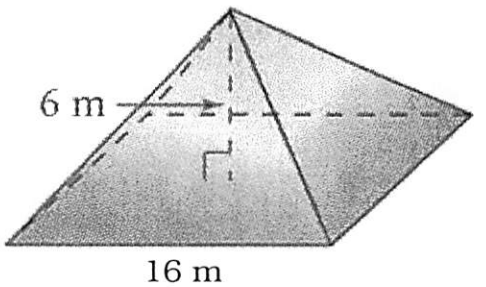
Volume, Lateral Area, and Surface Area of Pyramids

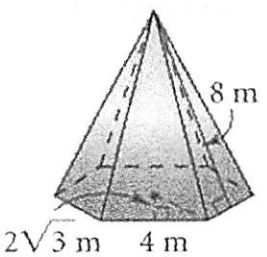
Find the volume of the square pyramid below.



2. Find the lateral area of the square pyramid below.



3. Find the surface area of the regular hexagonal pyramid below.



For you to Try:

4. The lateral faces of a regular pyramid are composed of

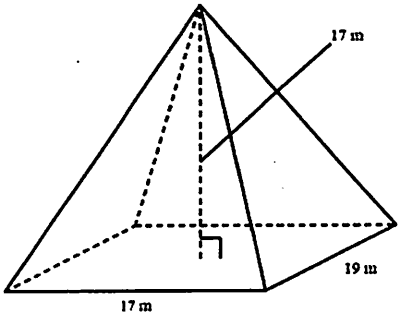
(1) squares

(2) rectangles

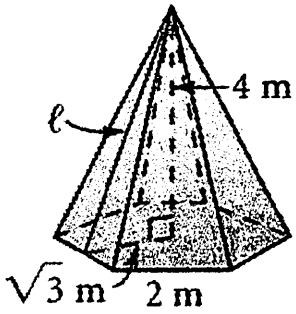
(3) congruent right triangles

(4) congruent isosceles triangles

5. Find the volume of the pyramid.



6. Find the surface area to the *nearest tenth.*

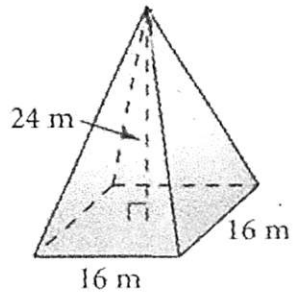


7. The roof of a tower is a square pyramid with base edges 10 *ft* long. The height of the pyramid is 6 *ft.* What is the area of the roofing material needed to cover the roof to the *nearest whole square foot?*

8. The base of a pyramid is a rectangle with a width of 6 cm and a length of 8 cm. Find, in centimeters, the height of the pyramid if the volume is 288 cm^3.

Volume, Lateral Area, and Surface Area of Pyramids

Find the volume of the square pyramid below.

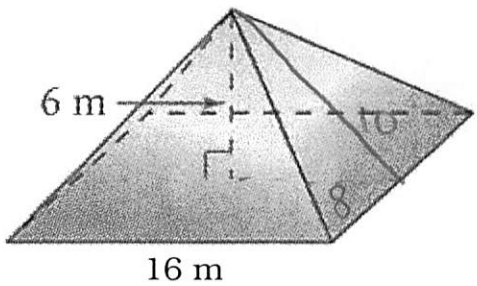


$V = \frac{1}{3} B \cdot h$

$V = \frac{1}{3}(16 \cdot 16)(24)$

$V = 2048\ m^3$

2. Find the lateral area of the square pyramid below.

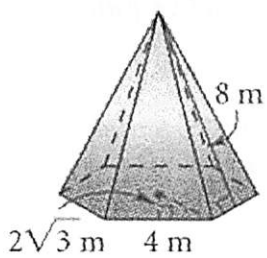


$LA = \frac{1}{2} P \ell$

$LA = \frac{1}{2}(4 \cdot 16)(10)$

$LA = 320\ m^2$

3. Find the surface area of the regular hexagonal pyramid below.



perimeter of base = 24

$SA = \frac{1}{2} P \ell + B$

$SA = \frac{1}{2}(6 \cdot 4)(8) + \frac{1}{2}(2\sqrt{3})(24)$

$SA = 137.6\ m^2$

For you to Try:

4. The lateral faces of a regular pyramid are composed of

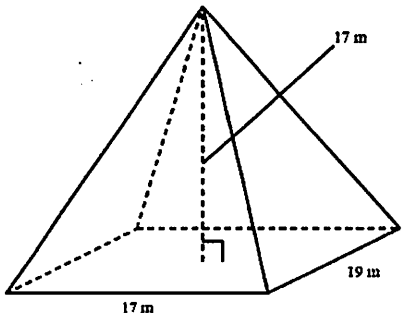
(1) squares

(2) rectangles

(3) congruent right triangles

(4) congruent isosceles triangles

5. Find the volume of the pyramid.

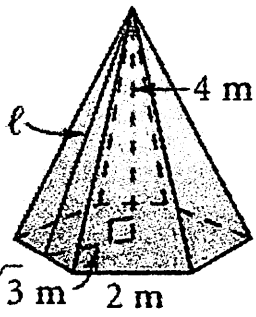


$V = \frac{1}{3}Bh$

$V = \frac{1}{3}(17)(19)(17)$

$V = 1830.3\ m^3$

6. Find the surface area to the *nearest tenth.*



$SA = \frac{1}{2}Pl + B$

$SA = \frac{1}{2}(12)(\sqrt{19}) + \frac{1}{2}(\sqrt{3})(12)$

$SA = 36.5\ m^2$

$\ell^2 = (\sqrt{3})^2 + 4^2$

$\ell^2 = 19$

$\ell = \sqrt{19}$

7. The roof of a tower is a square pyramid with base edges 10 *ft* long. The height of the pyramid is 6 *ft.* What is the area of the roofing material needed to cover the roof to the *nearest whole square foot?*

$\ell^2 = 6^2 + 5^2$

$\ell^2 = 61$

$\ell = \sqrt{61}$

$LA = \frac{1}{2}Pl$

$LA = \frac{1}{2}(40)(\sqrt{61})$

$LA = 156\ ft^2$

8. The base of a pyramid is a rectangle with a width of 6 cm and a length of 8 cm. Find, in centimeters, the height of the pyramid if the volume is 288 cm^3.

$V = \frac{1}{3}Bh$

$288 = \frac{1}{3}(6 \cdot 8)h$

$h = 18\ cm$