

U9

Practice

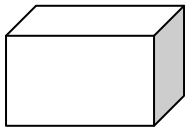
Form K

Surface Areas of Pyramids and Cones

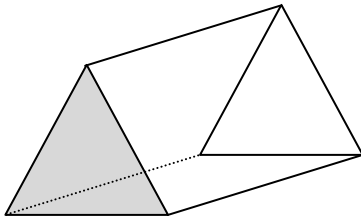
Some students will apply formulas to finding surface area pretty easily. Others do not do well with formulas and would benefit more from a logical approach.

Logic: What is the surface area of a three-dimensional figure?

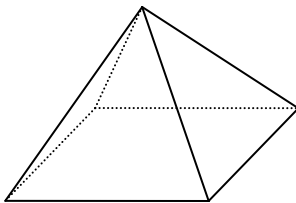
a) If a 3-D figure had 6 sides and they were all rectangles, how would find the surface area?



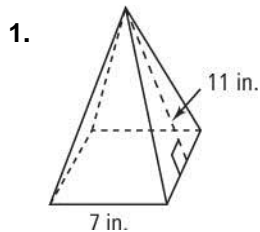
b) If a 3-D figure had 5 sides, 2 of which were triangles and the other 3 were rectangles, how would you find the surface area?



c) If a 3-D figure had 5 sides, one of which was a rectangle and the other 4 were triangles, how would you find the surface area?



Find the surface area of each pyramid.



To start, use the formula for surface area (if necessary) of the pyramid, then identify the variables and any given values.

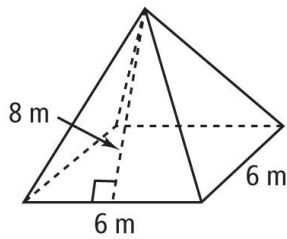
$$S.A. = \frac{1}{2}p\ell + B$$

$$p = 4 \cdot \square = \square \text{ in.}$$

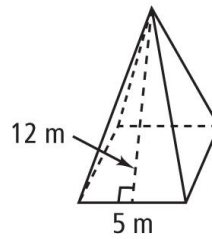
$$\ell = \square \text{ in.}$$

$$B = \square \cdot \square = \square \text{ in.}^2$$

2.

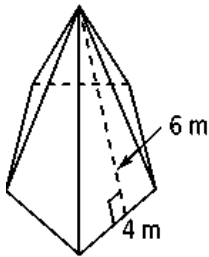


3.

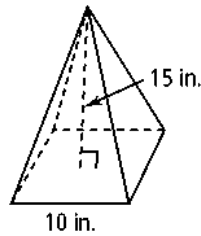


Find the lateral area of each pyramid. Include units in your answer.

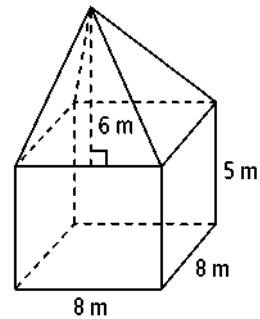
4.



5.



6. The figure at the right has one base and eight lateral faces.
Find its surface area.



7. The roof of a clock tower is a square pyramid. Each side of the base is 16 ft long. The slant height is 22 ft. What is the lateral area of the roof?

8. **Reasoning** Explain how the formula for the surface area of a pyramid works. Explain what each part finds, and how it relates to the 'logic' way of finding surface area.

$$S.A. = \frac{1}{2}p\ell + B$$

The length of a side (s) of the base, slant height (ℓ), height (h), lateral area (L.A.), and surface area (S.A.) are measurements of a square pyramid. Given two of the measurements, find the other three to the nearest tenth.

9. $s = 16$ cm, $\ell = 10$ cm

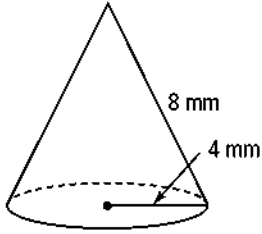
10. L.A. = 624 m^2 , S.A. = 1200 m^2

11. $h = 7$ cm, $\ell = 25$ cm

Surface Area of Cones

Find the surface area of each cone in terms of π .

1.



To start, use the formula for surface area of the pyramid, then identify the variables and any given values.

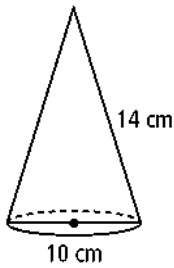
$$S.A. = \pi r \ell + B$$

$$r = \square \text{ mm}$$

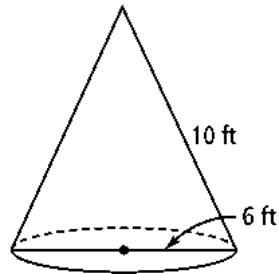
$$\ell = \square \text{ mm}$$

$$B = \pi \cdot \square^2 = \square \text{ mm}^2$$

2.

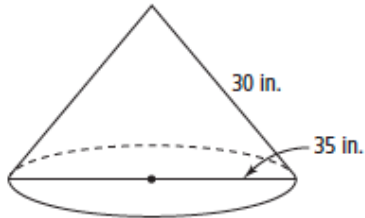


3.

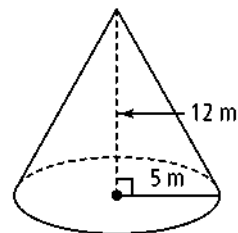


Find the lateral area of each cone.

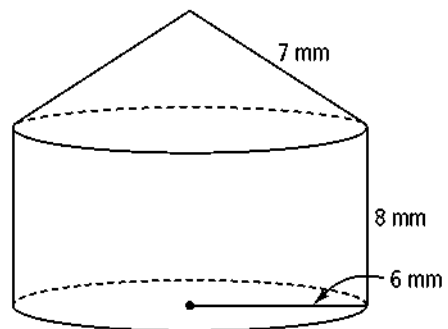
4.



5.



6. Find the surface area of the figure at the right. (*Hint*: Add the base, the lateral area of the cylinder, and the lateral area of the cone.)



7. The lateral area of a cone is $60\pi \text{ m}^2$. The slant height is 15 m. What is the radius?

8. The surface area of a cone is $55\pi \text{ cm}^2$. The radius is 5 cm. What is the slant height?