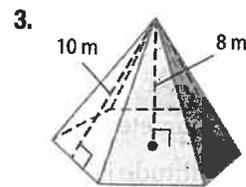
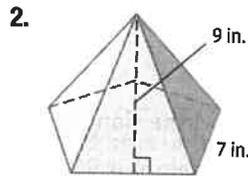
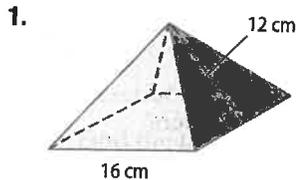


Check Your Understanding

Step-by-Step Solutions begin on page R14.

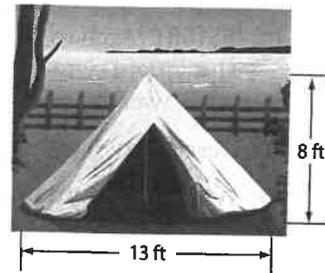


Examples 1–3 Find the lateral area and surface area of each regular pyramid. Round to the nearest tenth if necessary.

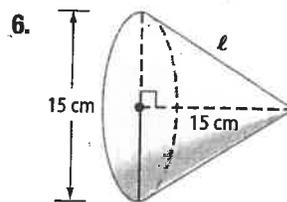
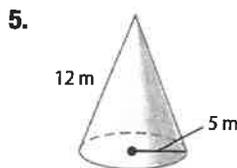


Examples 4–5 4. **TENTS** A conical tent is shown at the right. Round answers to the nearest tenth.

- Find the lateral area of the tent and describe what it represents.
- Find the surface area of the tent and describe what it represents.



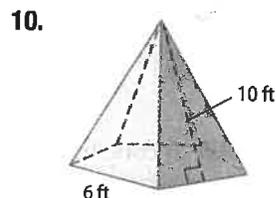
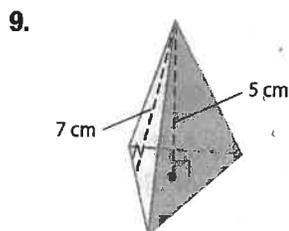
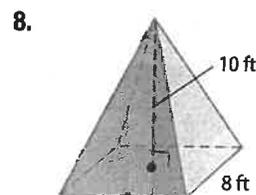
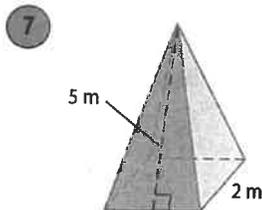
CCSS SENSE-MAKING Find the lateral area and surface area of each cone. Round to the nearest tenth.



Practice and Problem Solving

Extra Practice is on page R12.

Examples 1–3 Find the lateral area and surface area of each regular pyramid. Round to the nearest tenth if necessary.



- square pyramid with an altitude of 12 inches and a slant height of 18 inches
- hexagonal pyramid with a base edge of 6 millimeters and a slant height of 9 millimeters
- ARCHITECTURE** Find the lateral area of a pyramid-shaped building that has a slant height of 210 feet and a square base 332 feet by 332 feet.



Sketch each solid and a net that represents the solid.

30. hexagonal pyramid

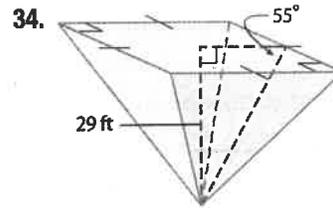
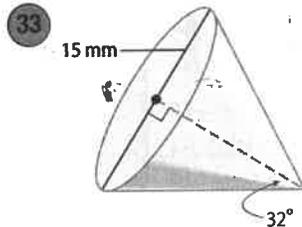
31. rectangular pyramid

32. **PETS** A *frustum* is the part of a solid that remains after the top portion has been cut by a plane parallel to the base. The ferret tent shown at the right is a frustum of a regular pyramid.



- Describe the faces of the solid.
- Find the lateral area and surface area of the frustum formed by the tent.
- Another pet tent is made by cutting the top half off of a pyramid with a height of 12 centimeters, slant height of 20 centimeters and square base with side lengths of 32 centimeters. Find the surface area of the frustum.

Find the lateral area and surface area of each solid. Round to the nearest tenth.



35. **MULTIPLE REPRESENTATIONS** In this problem, you will investigate the lateral and surface area of a square pyramid with a base edge of 3 units.
- Geometric** Sketch the pyramid on isometric dot paper.
 - Tabular** Make a table showing the lateral areas of the pyramid for slant heights of 1, 3, and 9 units.
 - Verbal** Describe what happens to the lateral area of the pyramid if the slant height is tripled.
 - Analytical** Make a conjecture about how the lateral area of a square pyramid is affected if both the slant height and the base edge are tripled. Then test your conjecture.

H.O.T. Problems Use Higher-Order Thinking Skills

36. **WRITING IN MATH** Why does an oblique solid not have a slant height?
37. **REASONING** Classify the following statement as *sometimes*, *always*, or *never* true. Justify your reasoning.
- The surface area of a cone of radius r and height h is less than the surface area of a cylinder of radius r and height h .*
38. **REASONING** A cone and a square pyramid have the same surface area. If the areas of their bases are also equal, do they have the same slant height as well? Explain.
39. **OPEN ENDED** Describe a pyramid that has a total surface area of 100 square units.
40. **ARGUMENTS** Determine whether the following statement is *true* or *false*. Explain your reasoning.
- A regular polygonal pyramid and a cone both have height h units and base perimeter P units. Therefore, they have the same total surface area.*
41. **WRITING IN MATH** Describe how to find the surface area of a regular polygonal pyramid with an n -gon base, height h units, and an apothem of a units.

