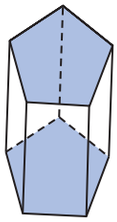
Section Overview

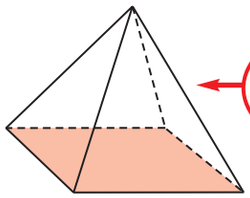
SECTION 10A

Three-Dimensional Figures — Lesson 10-1

Why? Identifying and distinguishing among three-dimensional figures is a prerequisite for finding the volume and surface area of these figures.

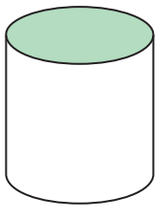


A **prism** has two parallel congruent faces; the remaining faces are parallelograms. This figure is a **pentagonal prism**.

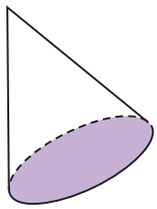


The faces of a pyramid are triangles. The base of the pyramid can be any polygon. This figure is a **square pyramid**.

Cylinder



Cone

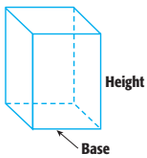
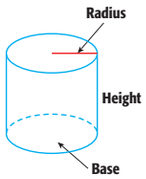
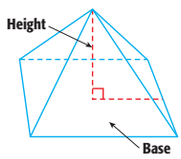
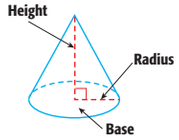
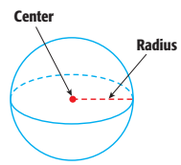


Volume — Lessons 10-2, 10-3

Why? Volume is an important real-world concept. You need to be able to calculate volume to determine the amount of water needed to fill a swimming pool or to determine the size of a heating system for a home.

Volume is the number of **cubic units** needed to **fill** a three-dimensional figure.

Volume Formulas

	Prism	Cylinder	Pyramid	Cone	Sphere
					
Volume	$V = Bh$	$V = Bh = (\pi r^2)h$	$V = \frac{1}{3}Bh$	$V = \frac{1}{3}Bh$ $= \frac{1}{3}(\pi r^2)h$	$V = \frac{4}{3}\pi r^3$

Key for Variables:

B area of base (circle or polygon)
h height (always perpendicular to base)
r radius of circular base