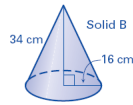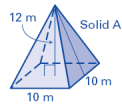## 9.5 Volume of Pyramids and Cones

GOAL Find the volumes of pyramids and cones.

Warm Up

In Exercises 1–4, use the diagrams below.

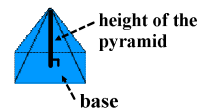Solid A — 12 m, 10 m, 10 m

Solid B — 34 cm, 16 cm

1. What is the name of Solid A? Solid B?
2. What is the area of the base of Solid A? Solid B?
3. What is the height of Solid A? Solid B?
4. What is the slant height of Solid A? Solid B?

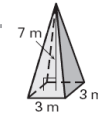Mar 20-10:07 AM

Volume of a Pyramid

Volume = one-third times area of base times height of the pyramid

$V = 1/3\ B\ h$

height of the pyramid

base

Find the Volume of a Pyramid

Find the volume of the pyramid.

7 m, 3 m, 3 m

SOLUTION

Write the formula for volume of a pyramid.

$(1/3)$ (Area of square base) $(height)$

Simplify.

Mar 20-10:11 AM

Find the volume of the pyramid.

1. 12 yd, 9 yd, 9 yd
2. 8 m, 6 m, 4 m
3. 15 cm, 11 cm, 5 cm

Mar 20-10:22 AM
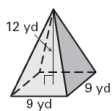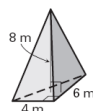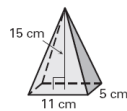
Find the Volume of a Pyramid

Find the volume of the pyramid.

SOLUTION

12 cm, 10 cm, 10 cm

You are given the slant height of the pyramid. You need to find the height before you can find the volume. The height, $\frac{1}{2}$ of one of the sides of the base, and the slant height form a right triangle.

$\left(\frac{1}{2}\ base\ side\right)^2 + (height)^2 = (slant\ height)^2$ Use the Pythagorean Theorem.
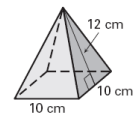
Substitute.

Simplify.

Subtract 25 from each side.

Take positive square root of each side.

Now find the volume of the pyramid.

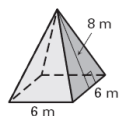Write the formula for volume of pyramid.

Area of square base $= 10^2$.

Simplify.

Mar 20-10:32 AM

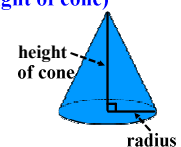**Find the volume of the solid. Round your answer to the nearest whole number.**

8 m, 6 m, 6 m

Mar 20-10:35 AM

Volume of a Cone

Volume = (one-third) (area of base)(height of cone)

$V = 1/3\ \pi\ r^2\ h$

height of cone

radius

Find the Volume of a Cone

Find the volume of the cone. Round your answer to the nearest whole number.

5 yd, 6 yd
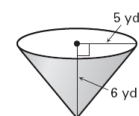
SOLUTION

Write the formula for volume of a cone.

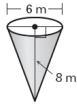Substitute 5 for r and 6 for h.

Multiply.

Mar 20-10:22 AM

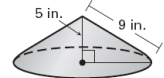**Find the volume of the cone. Round your answer to the nearest whole number.**

4.

12 ft

10 ft

5.

6 m

8 m

6.

21 cm

14 cm

Mar 20-10:31 AM

Find the volume of the solid. Round your answer to the nearest whole number.

14 cm

4 cm

5 in.

9 in.

Mar 20-10:37 AM