Chapter 8 Lesson 2
Volume of Cones
Find the volume of the cylinder. Round to the nearest tenth.

1. 

2. 

3. A water trough for a herd of cattle is a cylinder with a radius of 2.2 meters and a height of 1.1 meters. What is the volume of water that can be held in the trough?

4. **TEST PRACTICE** A cylindrical canning jar has a diameter of 3.2 inches and a height of 5.2 inches. What is the approximate volume of the canning jar?
   - A. 167.2 in$^3$
   - B. 135.7 in$^3$
   - C. 52.2 in$^3$
   - D. 41.8 in$^3$
Quick Check

Find the volume of the cylinder. Round to the nearest tenth.

1.  
   \[ \text{Volume} = \pi r^2 h \]

2.  
   \[ \text{Volume} = \pi r^2 h \]

3. A water trough for a herd of cattle is a cylinder with a radius of 2.2 meters and a height of 1.1 meters. What is the volume of water that can be held in the trough?

   \[ \text{Volume} = \pi r^2 h = \pi (2.2)^2 (1.1) \]

4. **TEST PRACTICE** A cylindrical canning jar has a diameter of 3.2 inches and a height of 5.2 inches. What is the approximate volume of the canning jar?

   \[ \text{Volume} = \pi r^2 h = \pi (1.6)^2 (5.2) \]

   A. 167.2 in\(^3\)
   B. 135.7 in\(^3\)
   C. 52.2 in\(^3\)
   D. 41.8 in\(^3\)

**ANSWERS**
1. 6.4 yd\(^3\)
2. 138.2 cm\(^3\)
3. 16.7 m\(^3\)
4. D
Objective

- find the volume of a cone
Volume of a Cone

Words: The volume $V$ of a cone with radius $r$ is one third the area of the base $B$ times the height $h$.

Symbol: $V = \frac{1}{3}Bh$ or $V = \frac{1}{3}\pi r^2h$

What is the difference between this formula and the formula for the volume of a cylinder?
Video

https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-geometry/cc-8th-volume/v/volume-cone-example
Example 1

\[ V = \frac{1}{3} \pi r^2 h \]

Volume of a cone

\[ V = \frac{1}{3} \cdot \pi \cdot 3^2 \cdot 6 \quad r = 3, \ h = 6 \]
Example 1

The volume is about 56.5 cubic inches.
Find the Volume of the cones

(a) Cone with base radius 2 ft and height 7 ft.
(b) Cone with base radius 26 mm and height 24 mm.
Find the Volume of the cones

29.3 cubic ft.  3,920.7 cubic mm.
Hot Problem

Which cone would have a greater volume? A cone with a radius of 6” and a height of 4”, or a cone with a radius of 4” and a height of 6”? 
Hot Problem

\[(\frac{1}{3})(6)(6)(4) \quad \text{or} \quad (\frac{1}{3})(4)(4)(6)\]

\[48^2 \quad \text{or} \quad 32^2\]
Find the Volume of the shape
Find the Volume of the shape

289.4 cubic ft.
Find the Volume of this Shape
Find the Volume of this Shape

697.4 Cubic inches
How did the previous lesson on finding the volume of a cylinder help you with finding the volume of a cone?
Homework Problems

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