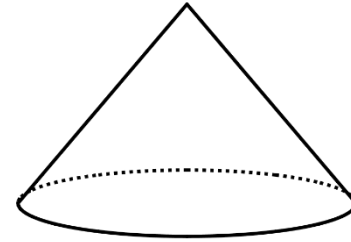


**Unit 5, Lesson 15: The Volume of a Cone**

1. A cylinder and cone have the same height and radius. The height of each is 5 cm, and the radius is 2 cm. Calculate the volume of the cylinder and the cone.

**The volume of this cone is  $36\pi$  cubic units.**

2. What is the volume of a cylinder that has the same base area and the same height as the cone above?



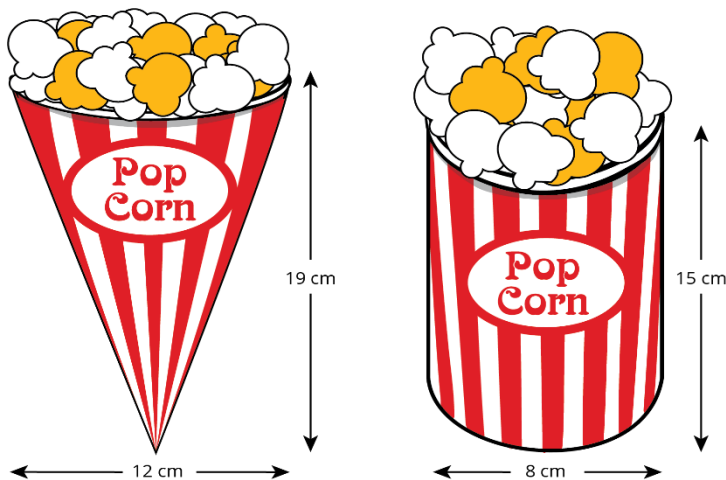
3. A cylinder has a diameter of 6 cm and a volume of  $36\pi \text{ cm}^3$ .

a) Sketch the cylinder.

b) Find its height and radius in centimeters.

c) Label your sketch with the cylinder's height and radius.

**16.4: Popcorn Deals**

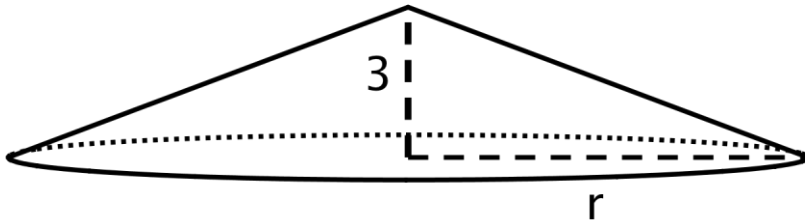


**A movie theater offers two containers:**

1. Which container is the better value? Use 3.14 as an approximation for  $\pi$ .

## 16.2: An Unknown Radius

The volume  $V$  of a cone with radius  $r$  is given by the formula  $V = \frac{1}{3}\pi r^2 h$ .



The volume of this cone with height 3 units and radius  $r$  is  $V = 64\pi$  cubic units.

**This statement is true:**  $64\pi = \frac{1}{3}\pi r^2 \cdot 3$

1. What does the radius of this cone have to be? Explain how you know.

### Bonus Question

2. A grain silo has a cone shaped spout on the bottom in order to regulate the flow of grain out of the silo. The diameter of the silo is 8 feet. The height of the cylindrical part of the silo above the cone spout is 12 feet while the height of the entire silo is 16 feet.

**How many cubic feet of grain are held in the cone spout of the silo? How many cubic feet of grain can the entire silo hold?**

