

Unit 6 Lesson 20: Finding Cone Dimensions

1 Number Talk: Thirds (Warm up)

Student Task Statement

For each equation, decide what value, if any, would make it true.

$$27 = \frac{1}{3}h$$

$$27 = \frac{1}{3}r^2$$

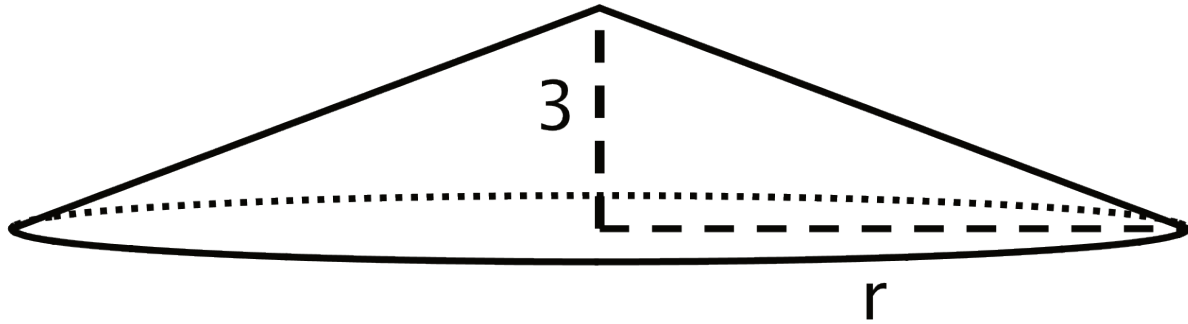
$$12\pi = \frac{1}{3}\pi a$$

$$12\pi = \frac{1}{3}\pi b^2$$

2 An Unknown Radius (Optional)

Student Task Statement

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

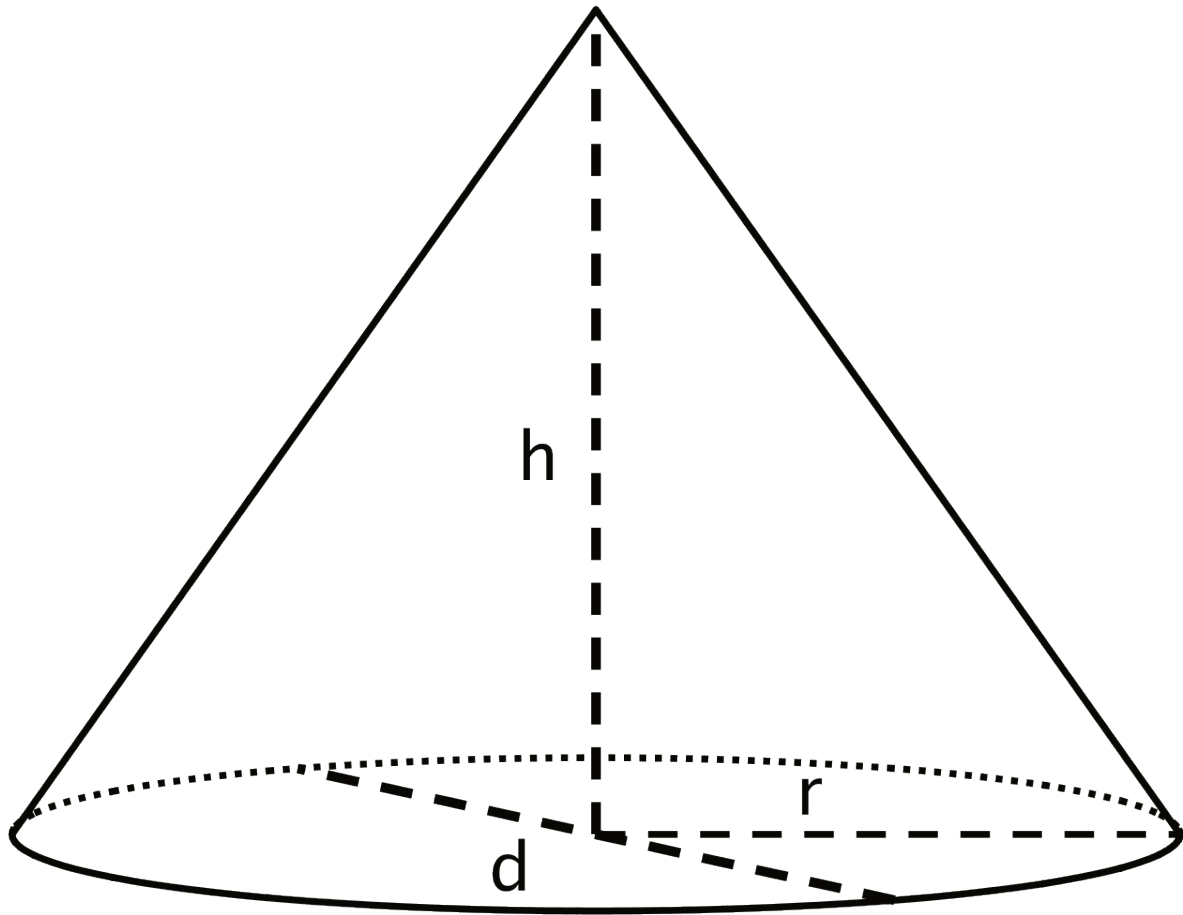


The volume of this cone with height 3 units and radius r is $V = 64\pi$ cubic units. This statement is true:

$64\pi = \frac{1}{3}\pi r^2 \cdot 3$ What does the radius of this cone have to be? Explain how you know.

3 Cones with Unknown Dimensions

Student Task Statement



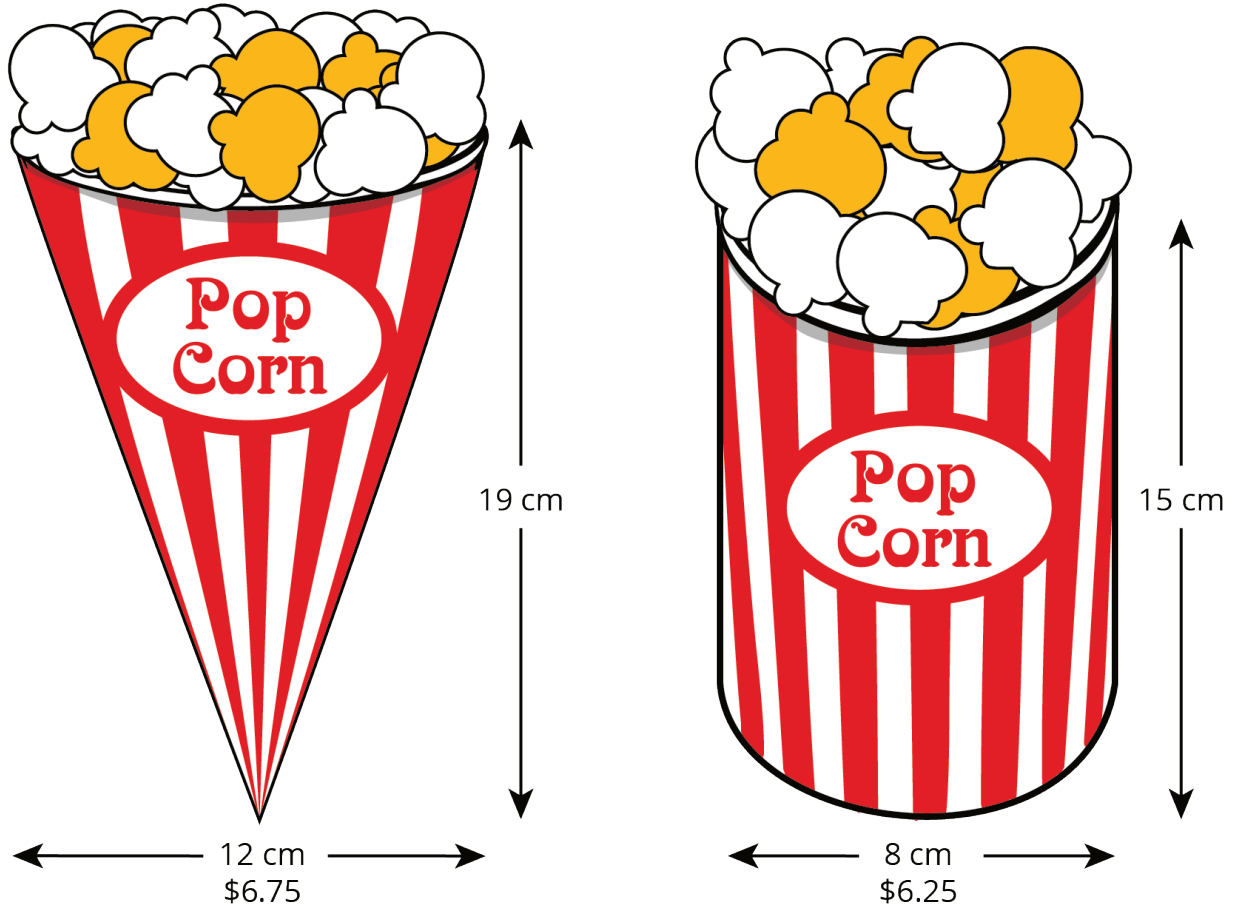
Each row of the table has some information about a particular cone. Complete the table with the missing dimensions.

diameter (units)	radius (units)	area of the base (square units)	height (units)	volume of cone (cubic units)
	4		3	
	$\frac{1}{3}$		6	
		144π	$\frac{1}{4}$	
20				200π
			12	64π
			3	3.14

4 Popcorn Deals

Student Task Statement

A movie theater offers two containers:



Which container is the better value? Use 3.14 as an approximation for π .