

## Lesson 21 Practice Problems

1. A cylinder has a volume of  $48\pi \text{ cm}^3$  and height  $h$ . Complete this table for volume of cylinders with the same radius but different heights.

height (cm)	volume ( $\text{cm}^3$ )
$h$	$48\pi$
$2h$	
$5h$	
$\frac{h}{2}$	
$\frac{h}{5}$	

2. A cylinder has a radius of 3 cm and a height of 5 cm.
- What is the volume of the cylinder?
  - What is the volume of the cylinder when its height is tripled?
  - What is the volume of the cylinder when its height is halved?
3. A graduated cylinder that is 24 cm tall can hold 1 L of water. What is the radius of the cylinder? What is the height of the 500 ml mark? The 250 ml mark? Recall that 1 liter (L) is equal to 1000 milliliters (ml), and that 1 liter (L) is equal to  $1,000 \text{ cm}^3$ .

4. An ice cream shop offers two ice cream cones. The waffle cone holds 12 ounces and is 5 inches tall. The sugar cone also holds 12 ounces and is 8 inches tall. Which cone has a larger radius?

(From Unit 6, Lesson 20.)

5. A 6 oz paper cup is shaped like a cone with a diameter of 4 inches. How many ounces of water will a plastic cylindrical cup with a diameter of 4 inches hold if it is the same height as the paper cup?

(From Unit 6, Lesson 19.)

6. Lin's smart phone was fully charged when she started school at 8:00 a.m. At 9:20 a.m., it was 90% charged, and at noon, it was 72% charged.
- When do you think her battery will die?
  - Is battery life a function of time? If yes, is it a linear function? Explain your reasoning.

(From Unit 6, Lesson 9.)