

Lesson 20 Practice Problems

1.
 - a. A cube's volume is 512 cubic units. What is the length of its edge?
 - b. If a sphere fits snugly inside this cube, what is its volume?
 - c. What fraction of the cube is taken up by the sphere? What percentage is this? Explain or show your reasoning.
2. Sphere A has radius 2 cm. Sphere B has radius 4 cm.
 - a. Calculate the volume of each sphere.
 - b. The radius of Sphere B is double that of Sphere A. How many times greater is the volume of B?
3. Three cones have a volume of $192\pi \text{ cm}^3$. Cone A has a radius of 2 cm. Cone B has a radius of 3 cm. Cone C has a radius of 4 cm. Find the height of each cone.

(From Unit 5, Lesson 16.)

4. The graph represents the average price of regular gasoline in the United States in dollars as a function of the number of months after January 2014.



- How many months after January 2014 was the price of gas the greatest?
- Did the average price of gas ever get below \$2?
- Describe what happened to the average price of gas in 2014.

(From Unit 5, Lesson 5.)

5. Match the description of each sphere to its correct volume.

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|-------------------------------|-------------------------------------|
| A. Sphere A: radius of 4 cm | 1. $288\pi \text{ cm}^3$ |
| B. Sphere B: diameter of 6 cm | 2. $\frac{256}{3}\pi \text{ cm}^3$ |
| C. Sphere C: radius of 8 cm | 3. $36\pi \text{ cm}^3$ |
| D. Sphere D: radius of 6 cm | 4. $\frac{2048}{3}\pi \text{ cm}^3$ |

6. While conducting an inventory in their bicycle shop, the owner noticed the number of bicycles is 2 fewer than 10 times the number of tricycles. They also know there are 410 wheels on all the bicycles and tricycles in the store. Write and solve a system of equations to find the number of bicycles in the store.

(From Unit 4, Lesson 15.)