

# Length, Area, and Volume

NAME \_\_\_\_\_

1. Cube A has an edge length of 2 centimeters, and cube B has an edge length of 4 centimeters. Calculate the area of one face, the total surface area, and the volume of each cube. Determine the ratios of edge length, area of one face, surface area, and volume for the two cubes. Explain how the ratios are related.
2. Cube C has an edge length of 1.8 meters, and cube D has an edge length of 5.4 meters. Calculate the area of one face, the total surface area, and the volume of each cube. Determine the ratios of edge length, area of one face, surface area, and volume for the two cubes. Explain how the ratios are related.
3. The edge length of cube E is 3 inches. The area of one face of cube E is one-half the area of cube F. What is the edge length of cube F? Explain your solution.
4. The dimensions of a rectangular prism are  $13 \text{ cm} \times 8 \text{ cm} \times 5 \text{ cm}$ . Increase each dimension by 50%. How is the volume of the new prism related to the volume of the original prism? Explain your solution.
5. Choose a radius for a sphere, and calculate its volume. Then, create a second by doubling the radius. Calculate the volume of the second sphere. Compare the volumes of these two spheres. Does the comparison match your expectation of the ratios?