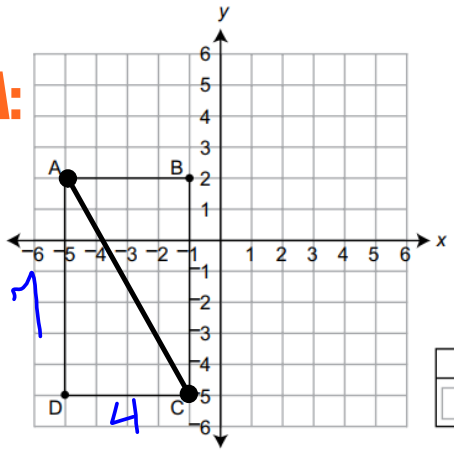
2.26.20

At The Bell: **PSSA:**

In the grid shown below, rectangle ABCD represents the location of a pool at a city park.



Key
= 1 meter

Anna swims in a straight line from corner A to corner C of the swimming pool. What is the distance, in meters, Anna swims?

A. $\sqrt{22}$

B. 7

C. $\sqrt{65}$

D. 11

Grab a calculator.

$a^2 + b^2 = c^2$

$4^2 + 7^2 = c^2$

$16 + 49 = c^2$

$\sqrt{65} = \sqrt{c^2}$

Independent Practice pg. 645

Go online for Step-by-Step Solutions eHelp

1. The surface area of a rectangular prism is 95 square centimeters. What is the surface area of a similar prism with dimensions that are 4 times as great as the original prism? (Example 1) **1,520 cm^2**

2. The surface area of a pyramid is 57.8 square inches. What is the surface area of a similar pyramid with dimensions that are 2 times as great as the original prism? (Example 1) **231.2 in^2**

3. A cereal box has a surface area of 280 square inches. What is the surface area of a similar box that is larger by a scale factor of 1.4? (Example 1) **548.8 in^2**

$SA = 280(1.4)^2$

4. A glass display box has a surface area of 378 square inches. How many square inches of glass are used to create a glass display box with dimensions that are one-half those of the original? (Example 1) **94.5 in^2**

5. A cone has a volume of 9,728 cubic millimeters. What is the volume of a similar cone with dimensions that are one-eighth the dimensions of the original? (Example 2) **19 mm^3**

6. A triangular prism has a volume of 350 cubic meters. If the dimensions are tripled, what is the volume of the new prism? (Example 2) **9,450 m^3**

Extra Practice pg. 647

Copy and Solve **For Exercises 13–29, show your work and answers on a separate piece of paper.**

13. The surface area of a triangular prism is 300 square feet. What is the surface area of a similar prism with dimensions that are 3 times greater than the dimensions of the original prism? **2,700 ft^3**

14. The surface area of a rectangular prism is 1,350 square inches. What is the surface area of a similar prism with dimensions that are 2 times greater than the dimensions of the original prism? **5,400 in^2**

15. A pyramid has a volume of 640 cubic centimeters. If the dimensions of the pyramid are reduced to one-fourth of the original dimensions, what is the volume of the new pyramid? **10 cm^3**

16. The surface area of a rectangular prism is 1,300 square inches. Find the surface area of a similar solid that is larger by a scale factor of 3. **11,700 in^2**

17. The surface area of a triangular prism is 10.4 square meters. What is the surface area of a similar solid that is smaller by a scale factor of $\frac{1}{4}$? **0.65 m^2**

MP **Reason Inductively** **Determine whether each statement is *always*, *sometimes*, or *never* true.**

19. Two prisms with congruent bases are similar. **sometimes**

20. Similar solids have equal volumes. **sometimes**

21. Two cubes are similar. **always**

22. A prism and pyramid are similar. **never**

NAME _____ DATE _____ PERIOD _____

Lesson 8-6 Skills Practice

Changes in Dimensions

1. A cube has a surface area of 150 square inches. What is the surface area of a similar cube that is larger by a scale factor of 2?

$SA = 150(2)^2 = 600 in^2$

2. The surface area of a triangular prism is 60 square centimeters. What is the surface area of a similar prism that is smaller by a scale factor of $\frac{1}{5}$?

3. **MAIL** A shipping box has a surface area of 320 square inches. What is the surface area of a similar box that is larger by a scale factor of 1.2?

4. **CANS** A can of food has a volume of 344 cubic centimeters. What is the volume of a similar can that is smaller by a scale factor of $\frac{1}{2}$?

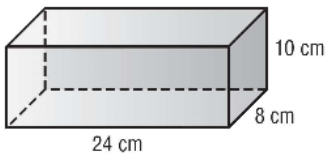
5. A cone has a volume of 7,560 cubic millimeters. What is the volume of a similar cone that is one sixth the size of this cone?

6. A pyramid has a surface area of 539 square feet. What is the surface area of a similar pyramid that is smaller by a scale factor of $\frac{1}{7}$?

7. **ART** The volume of a clay sculpture is 540 cubic inches. What is the volume of a similar sculpture that is larger by a scale factor of 2.5?

Use the rectangular prism for Exercises 8 and 9.

8. Find the volume for a rectangular prism that is larger than the one shown by a scale factor of 10.



9. Find the volume for a rectangular prism that is smaller than the one shown by a scale factor of $\frac{1}{10}$. Round to the nearest tenth.

NAME _____ DATE _____ PERIOD _____

Lesson 6 Problem-Solving Practice

Changes in Dimensions

PACKING Use the table for Exercises 1–3. The table shows the volumes of three types of packing boxes offered by a moving company.

Volume of Packing Boxes, in^3	
Type A	5,000
Type B	7,500
Type C	10,000

1. Taso needs a box that is similar to Type A but that is larger by a scale factor of 2.5. What would be the volume of this box?

2. Kristina needs a box that is similar to Type C but is smaller by a factor of $\frac{1}{2}$. What would be the volume of this box?

3. The moving company used to offer Type D, which was similar in shape to Type B, but was larger by a scale factor of 3. What was the volume of Type D?

4. DECORATION Odell had a cone-shaped decoration on her dresser. It has a volume of 6,800 cubic millimeters. What is the volume of a similar cone that is $\frac{1}{5}$ this size?

5. BIRD CAGE Buan built a bird cage with a surface area of 540 square inches. Her sister Sirib built a bird cage with a similar shape, and it is larger than Buan's bird cage by a scale factor of 2.25. What is the surface area of Sirib's bird cage? Round to the nearest tenth.

6. DETERGENT For a limited time, a brand of detergent is being sold in a larger size for the same cost as the original size. The two boxes are similar in shape. The surface area of the original box is 1,200 cubic centimeters and the surface area of the larger box is 2,028 cubic centimeters. How much greater is the height of the larger box than the original box?

Assignment:

Lesson 8-6
Skills Practice & Problem Solving

NAME _____ DATE _____ PERIOD _____

Lesson 6 Skills Practice

Changes in Dimensions

1. A cube has a surface area of 150 square inches. What is the surface area of a similar cube that is larger by a scale factor of 2? **600 in²**

2. The surface area of a triangular prism is 60 square centimeters. What is the surface area of a similar prism that is smaller by a scale factor of $\frac{1}{5}$? **2.4 cm²**

3. **MAIL** A shipping box has a surface area of 320 square inches. What is the surface area of a similar box that is larger by a scale factor of 1.2? **460.8 in²**

4. **CANS** A can of food has a volume of 344 cubic centimeters. What is the volume of a similar can that is smaller by a scale factor of $\frac{1}{2}$? **43 cm³**

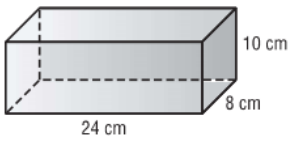
5. A cone has a volume of 7,560 cubic millimeters. What is the volume of a similar cone that is one sixth the size of this cone? **35 mm³**

6. A pyramid has a surface area of 539 square feet. What is the surface area of a similar pyramid that is smaller by a scale factor of $\frac{1}{7}$? **11 ft²**

7. **ART** The volume of a clay sculpture is 540 cubic inches. What is the volume of a similar sculpture that is larger by a scale factor of 2.5? **8,437.5 in³**

Use the rectangular prism for Exercises 8 and 9.

8. Find the surface area and volume for a rectangular prism that is larger than the one shown by a scale factor of 10. **102,400 cm²; 1,920,000 cm³**



9. Find the surface area and volume for a rectangular prism that is smaller than the one shown by a scale factor of $\frac{1}{10}$. Round to the nearest tenth. **10.2 cm²; 1.9 cm³**

NAME _____ DATE _____ PERIOD _____

Lesson 6 Problem-Solving Practice

Changes in Dimensions

PACKING Use the table for Exercises 1–3. The table shows the volumes of three types of packing boxes offered by a moving company.

Volume of Packing Boxes, in^3	
Type A	5,000
Type B	7,500
Type C	10,000

1. Taso needs a box that is similar to Type A but that is larger by a scale factor of 2.5. What would be the volume of this box? **78,125 in^3**

2. Kristina needs a box that is similar to Type C but is smaller by a factor of $\frac{1}{2}$. What would be the volume of this box? **1,250 in^3**

3. The moving company used to offer Type D, which was similar in shape to Type B, but was larger by a scale factor of 3. What was the volume of Type D? **202,500 in^3**

4. DECORATION Odell had a cone-shaped decoration on her dresser. It has a volume of 6,800 cubic millimeters. What is the volume of a similar cone that is $\frac{1}{5}$ this size? **54.4 mm^3**

5. BIRD CAGE Buan built a bird cage with a surface area of 540 square inches. Her sister Sirib built a bird cage with a similar shape, and it is larger than Buan's bird cage by a scale factor of 2.25. What is the surface area of Sirib's bird cage? Round to the nearest tenth. **2,733.8 in^2**

6. DETERGENT For a limited time, a brand of detergent is being sold in a larger size for the same cost as the original size. The two boxes are similar in shape. The surface area of the original box is 1,200 cubic centimeters and the surface area of the larger box is 2,028 cubic centimeters. How much greater is the height of the larger box than the original box?
1.3 times greater