Lesson 10.5 • Displacement and Density

Name _____ Period _____ Date _____

1. A stone is placed in a 5 cm-diameter graduated cylinder, causing the water level in the cylinder to rise 2.7 cm. What is the volume of the stone?

2. A 141 g steel marble is submerged in a rectangular prism with base 5 cm by 6 cm. The water rises 0.6 cm. What is the density of the steel?

3. A solid wood toy boat with a mass of 325 g raises the water level of a 50 cm-by-40 cm aquarium 0.3 cm. What is the density of the wood?

4. For Awards Night at Baddeck High School, the math club is designing small solid silver pyramids. The base of the pyramids will be a 2 in.-by-2 in. square. The pyramids should not weigh more than $2\frac{1}{2}$ pounds. One cubic foot of silver weighs 655 pounds. What is the maximum height of the pyramids?

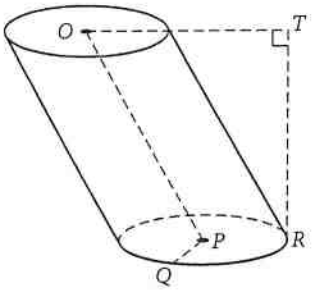
5. While he hikes in the Gold Country of northern California, Sid dreams about the adventurers that walked the same trails years ago. He suddenly kicks a small bright yellowish nugget. Could it be gold? Sid quickly makes a balance scale using his walking stick and finds that the nugget has the same mass as the uneaten half of his 330 g nutrition bar. He then drops the stone into his water bottle, which has a 2.5 cm radius, and notes that the water level goes up 0.9 cm. Has Sid struck gold? Explain your reasoning. (Refer to the density chart in Lesson 10.5 in your book.)

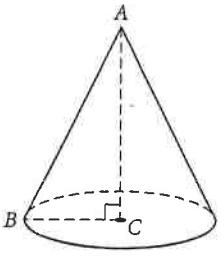
Chapter 10 Review #2

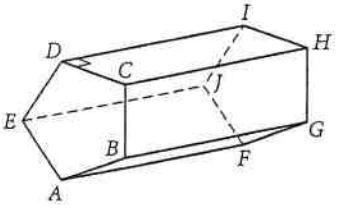
The Geometry of Solids

Name _____ Period _____ Date _____

For Exercises 1–14, refer to the figures below.







1. The cylinder is (oblique, right).
2. $\overline{OP}$ is _____ of the cylinder.
3. $\overline{TR}$ is _____ of the cylinder.
4. Circles O and P are _____ of the cylinder.
5. $\overline{PQ}$ is _____ of the cylinder.
6. The cone is (oblique, right).
7. Name the base of the cone.
8. Name the vertex of the cone.
9. Name the altitude of the cone.
10. Name a radius of the cone.
11. Name the type of prism.
12. Name the bases of the prism.
13. Name all lateral edges of the prism.
14. Name an altitude of the prism.

In Exercises 15–17, tell whether each statement is true or false. If the statement is false, give a counterexample or explain why it is false.

15. The axis of a cylinder is perpendicular to the base.
16. A rectangular prism has four faces.
17. The bases of a trapezoidal prism are trapezoids.

For Exercises 18 and 19, draw and label each solid. Use dashed lines to show the hidden edges.

18. A right triangular prism with height equal to the hypotenuse
19. An oblique trapezoidal pyramid