NAME _____ PERIOD _____ DATE _____

2.3 Volume Comparison Exercises

10. Explain what happens to the volume of a cylinder when

- **a.** the radius is doubled.
- **b.** the height is doubled.

11. Explain what happens to the volume of a cone when

- **a.** the radius is doubled.
- **b.** the height is doubled.

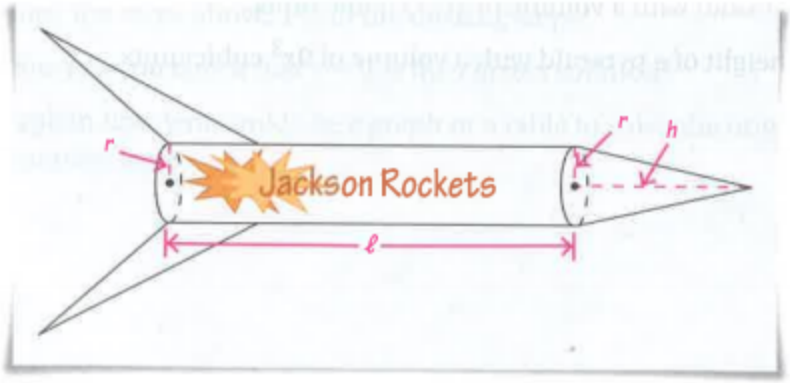
12. Explain what happens to the volume of a sphere when

- **a.** the radius is doubled.
- **b.** the radius is tripled.
- **c.** the radius is quadrupled (multiplied by 4).

13. The astronomy observatory pictured below has a diameter of 10 feet.

- **a.** What is the area of the floor?
- **b.** Write a general algebraic expression for the area of the floor.
- **c.** The observatory is made of a 3-foot-tall cylinder and half of a sphere (also called a *hemisphere*). What is the volume of the space inside the observatory?
- **d.** Write a general algebraic expression for the volume of the space inside the observatory.

14. The Jackson Middle School model rocket club drew the model rocket design below. The rocket is made from a cylinder and a cone. Write an expression to represent the volume of the rocket.



15. Ted made the model submarine shown below for his science class. Write an algebraic expression for the volume of Ted's submarine.