

1. **Writing** Describe how to use the vertical line test to determine whether a graph is a function. Why does this test work? 2-1

2. Does the table below represent a function? If so, what are its domain and range?

Soft Drinks	
12 oz	\$.75
20 oz	\$1.00
32 oz	\$1.50

3. a. Write a rule for  $V(r)$ , the volume of a cone as a function of its radius. The height of the cone is 9 in.  
b. Find  $V(2.5)$  and  $V(7x)$ .

4. Is the function  $f(x) = x^2 + 5$  *one-to-one* or *many-to-one*? Explain your answer.

5. A cablevision company charges its subscribers a monthly fee of \$24.28 for its basic service. The company also offers an additional Pay-per-Watch movie service that costs \$4.99 per movie. 2-2

- a. Write a rule for the monthly cable fee as a function of the number of movies ordered.  
b. Suppose Julie orders 5 movies this month. How much will she pay this month for her cable service?  
c. Ferris budgets \$45 per month for his cable service. How many movies can he order each month?  
d. Suppose the cablevision company increases the monthly fee for basic service by \$3. How does that affect the number of movies Ferris can order?

6.  $f(-6) = 7$  and  $f(3) = 4$ . Write an equation for  $f(x)$  in the form  $f(x) = mx + b$ .

7. A supermarket has a discount on “family packs” of meat. Chicken costs \$2.00/lb for packages over 5 lb. Smaller packages are \$2.50/lb. Express the cost as a function of weight. 2-3

8. Graph the functions  $y = |x - 3|$  and  $y = |x| - 3$  on the same set of axes. How are the graphs related?