

### 1.0 HW Relations and Functions

The table shows the number of gold medals won by United States athletes during the Summer Olympics.

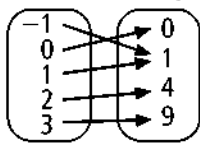
U.S. Gold Medals in Summer Olympics						
Year	1988	1992	1996	2000	2004	2008
Gold Medals	36	37	44	40	35	36

1. Represent the data using each of the following:
  - a. a mapping diagram
  - b. ordered pairs
  - c. a graph on the coordinate plane

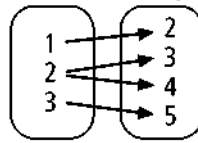
2. What is the domain and range of this data set?

Determine whether each relation is a function.

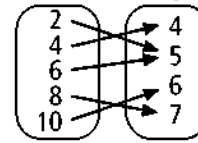
3. Domain      Range



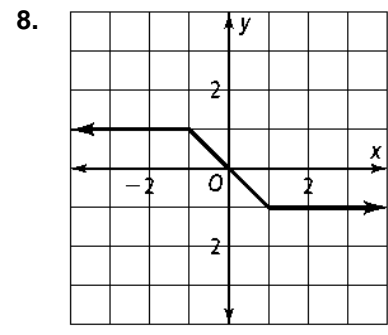
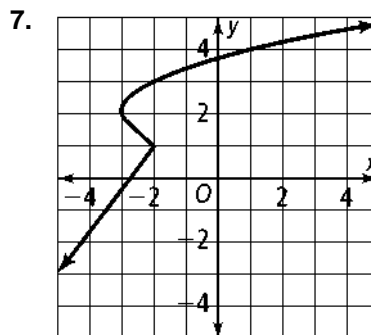
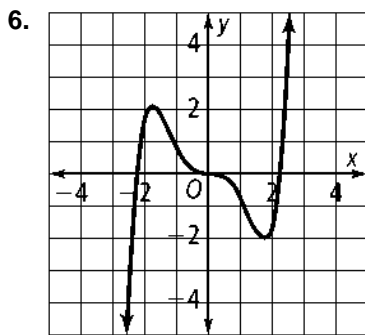
4. Domain      Range



5. Domain      Range



Use the vertical line test to determine whether each graph represents a function.



Evaluate the following expressions given the functions below:

$$g(x) = -3x + 1$$

$$f(x) = x^2 + 7$$

$$h(x) = \frac{12}{x}$$

$$j(x) = 2x + 9$$

9.  $g(10) =$

10.  $f(3) =$

11.  $h(-2) =$

12.  $j(7) =$

13.  $h(a)$

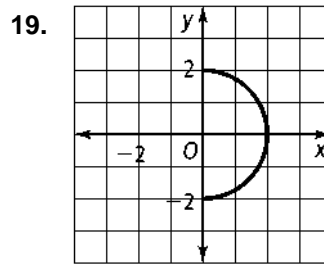
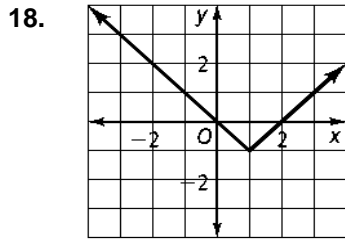
14.  $g(b+c)$

15. Find  $x$  if  $g(x) = 16$

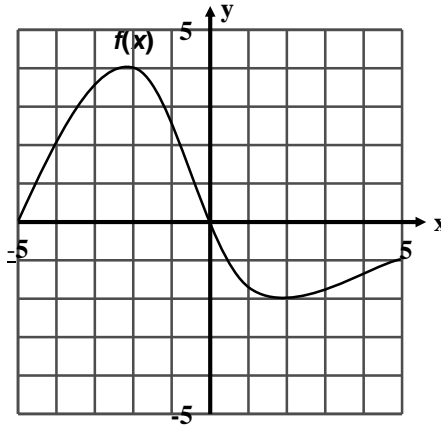
16. Find  $x$  if  $h(x) = -2$

17. Find  $x$  if  $f(x) = 23$

Find the domain and range of each relation, and determine whether it is a function.



20. Given this graph of the function  $f(x)$ :



Find:

a.  $f(-4) =$

b.  $f(0) =$

c.  $f(3) =$

d.  $f(-5) =$

e.  $x$  when  $f(x) = -2$

f.  $x$  when  $f(x) = 0$

21. Swine flu is attacking the North Pole. The function below determines how many elves have swine flu where  $t =$  time in days and  $S =$  the number of people in thousands.

$$S(t) = 9t - 4$$

a. Find  $S(4)$ .

b. What does  $S(4)$  mean?

c. Find  $t$  when  $S(t) = 23$ .

d. What does  $S(t) = 23$  mean?

e. Graph the function.

