Relations Expressed as Ordered Pairs
Determine if the following relations are functions. Then state the domain and range.

1. {(1, -2), (-2, 0), (-1, 2), (1, 3)}

Function: _____

Domain: _____

Range: _____

2. {(1, 1), (2, 2), (3, 5), (4, 10), (5, 15)}

Function: _____

Domain: _____

Range: _____

3. $\left\{\left(17,\frac{15}{4}\right),\left(\frac{15}{4},17\right),\left(15,\frac{17}{4}\right),\left(\frac{17}{4},15\right)\right\}$

Function: _____

Domain: _____

Range: _____

4. $\left\{\left(-3,\frac{2}{5}\right),\left(-3,\frac{3}{5}\right),\left(\frac{3}{2},-5\right),\left(5,\frac{2}{5}\right)\right\}$

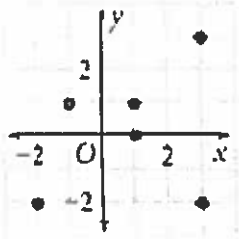
Function: _____

Domain: _____

Range: _____

Relations Expressed as Graphing
Write each of the following as a relation, state the domain and range, then determine if it is a function.

5.

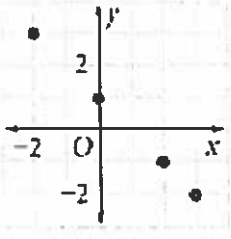


Domain: _____

Range: _____

Function: _____

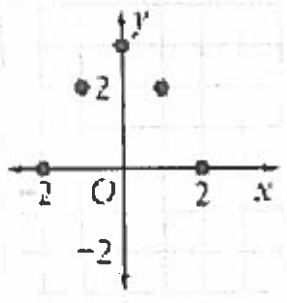
6.



Domain: _____

Range: _____

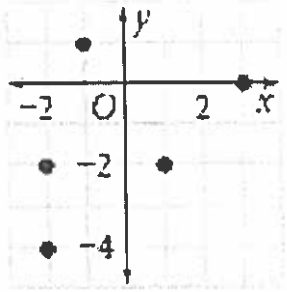
Function: _____

7. 

Domain: _____

Range: _____

Function: _____

8. 

Domain: _____

Range: _____

Function: _____

Relations Expressed as Mappings
Express the following relations as a mapping, state the domain and range, then determine if is a function.

9. {(-2, -1), (0, 3), (5, 4), (-2, 3)}

Domain: _____

Range: _____

Function: _____

10. {(-1, 5), (0, 3), (2, 3), (3, -1)}

Domain: _____

Range: _____

Function: _____

11. {(-1, 7), (0, -3), (1, 10), (0, 7)}

12. $\left\{\left(\frac{1}{2},2\right),\left(\frac{1}{4},2\right),\left(\frac{1}{8},2\right),\left(\frac{-1}{2},2\right)\right\}$

Domain: _____

Range: _____

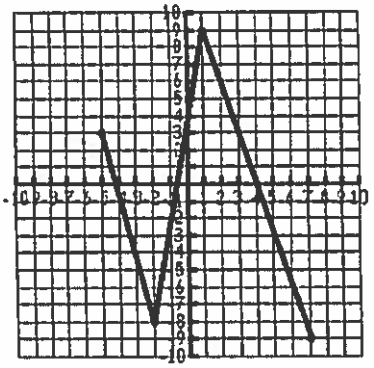
Function: _____

Domain: _____

Range: _____

Function: _____

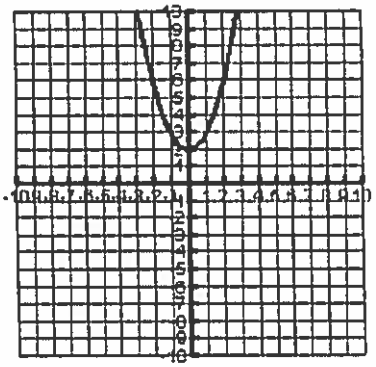
Determine if the graph is a function, then state the domain and range.

13. 

Domain: _____

Range: _____

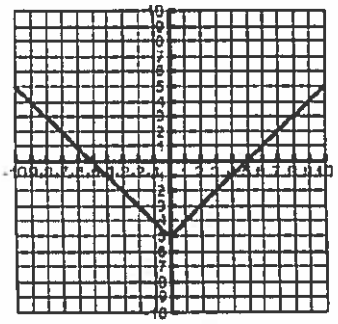
Function: _____

14. 

Domain: _____

Range: _____

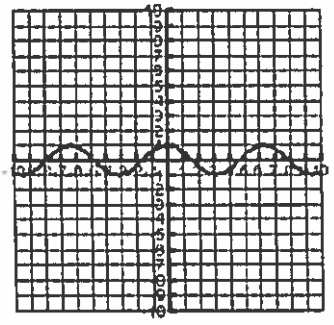
Function: _____

15. 

Domain: _____

Range: _____

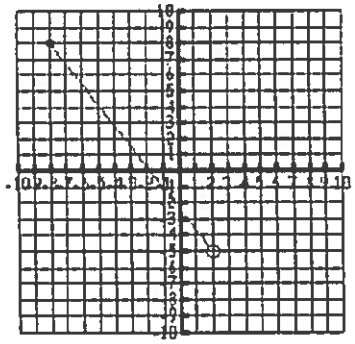
Function: _____

16. 

Domain: _____

Range: _____

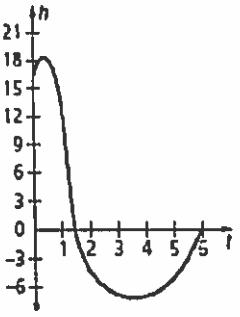
Function: _____

17. 

Domain: _____

Range: _____

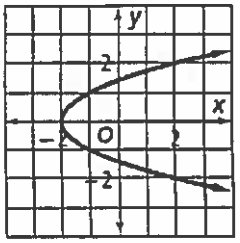
Function: _____

18. 

Domain: _____

Range: _____

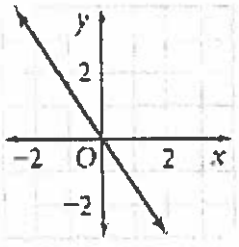
Function: _____

19. 

D: _____

R: _____

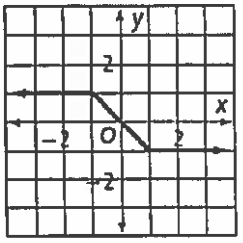
F: _____

20. 

D: _____

R: _____

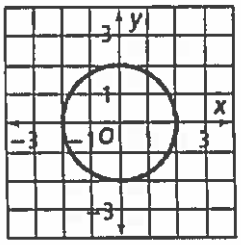
F: _____

21. 

D: _____

R: _____

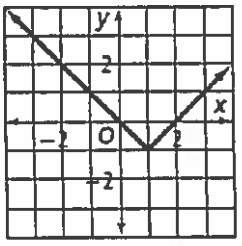
F: _____

22. 

D: _____

R: _____

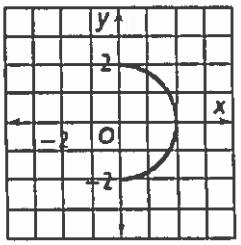
F: _____

23. 

D: _____

R: _____

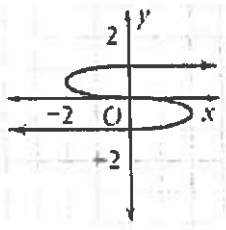
F: _____

24. 

D: _____

R: _____

F: _____

25. 

Domain: _____

Range: _____

Function: _____

1. Evaluate the following expressions given the functions below:

$g(x) = -3x + 1$ $\quad f(x) = x^2 + 7$ $\quad h(x) = \frac{12}{x}$ $\quad j(x) = 2x + 9$

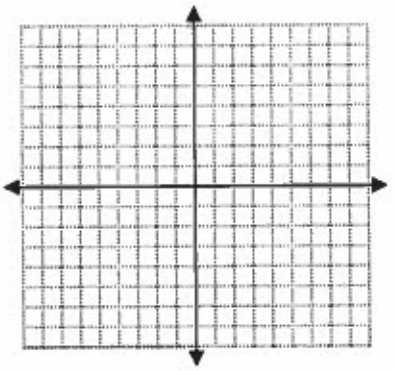
a. $g(10) =$ $\quad$ b. $f(3) =$ $\quad$ c. $h(-2) =$

d. $j(7) =$ $\quad$ e. $h(a)$

f. Find x if $g(x) = 16$ $\quad$ g. Find x if $h(x) = -2$ $\quad$ h. Find x if $f(x) = 23$

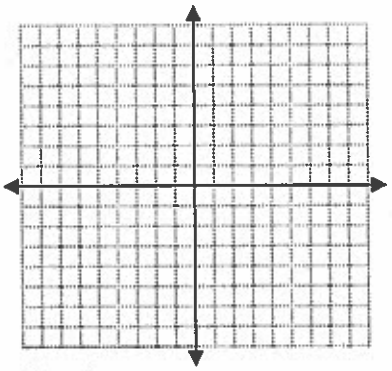
2. Given $f(x) = 3 - 4x$. Fill in the table and then sketch a graph.

x	$f(x)$
-6	
-3	
0	
1	
	-5



3. Given $f(x) = \sqrt{x+1}$. Fill in the table and then sketch a graph.

x	$f(x)$
3	
0	
8	
2	
15	



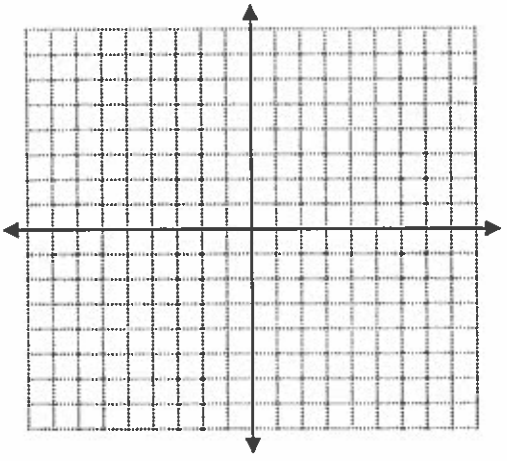
4. Translate the following statements into coordinate points, then plot them!

a. $f(-1) = 1$

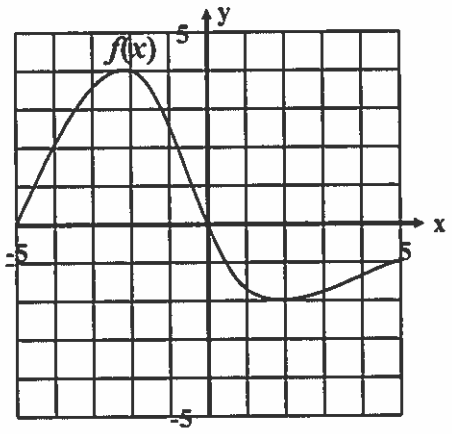
b. $f(2) = 7$

c. $f(1) = -1$

d. $f(3) = 0$



5. 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 $f(x) = 0$

APPLICATION

6. Bird flu is attacking Birdopolis. The function below determines how many people have bird flu where t = time in days and S = the number of people in thousands.

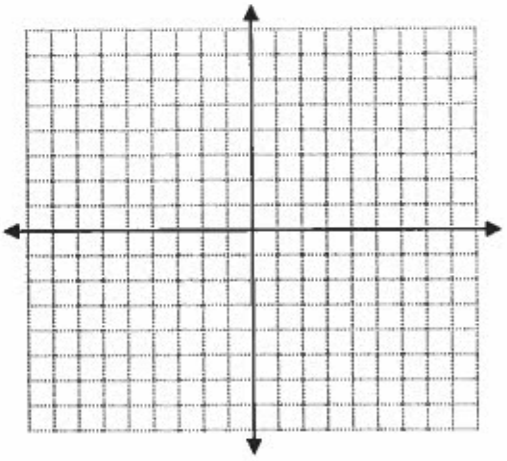
$$S(t) = 9t - 4$$

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.