

Algebra 1

Functions

Name: _____

Date: _____

Determine if the following relations are functions. Describe the domain and range.

1. $\{(5, -1), (0, 3), (-2, -4), (6, -1), (-2, 3)\}$

Function? _____ Domain: _____ Range: _____

2. $\{(9, 2), (-4, -1), (0, -3), (-7, 6), (5, -2)\}$

Function? _____ Domain: _____ Range: _____

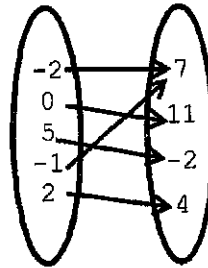
Determine if the following tables and mappings are functions. Describe the domain and range.

3.

x	y
3	9
8	24
-2	-6
0	0

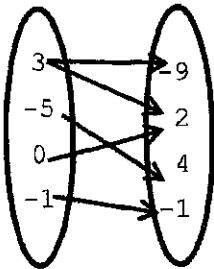
Function? _____
 Domain: _____
 Range: _____

4.



Function? _____
 Domain: _____
 Range: _____

5.



Function? _____
 Domain: _____
 Range: _____

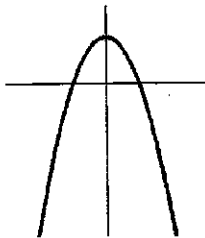
6.

x	y
-6	8
2	3
-6	-11
4	-2

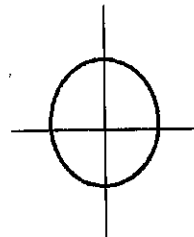
Function? _____
 Domain: _____
 Range: _____

Determine if the following graphs are functions. Use the vertical line test.

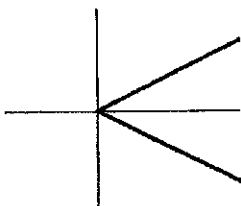
7. Function? _____



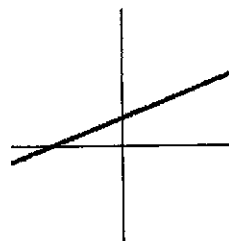
8. Function? _____



9. Function? _____



10. Function? _____



Name _____

Date _____ Period _____

WS 10-6-4 "Function Notation"

Write in function notation.

1) $y = 5x + 3$

2) $C = 12n - 100$

3) $d = 50t$

4) $m = 4p^2 - 3p + 7$

Write as an equation with two variables.

5) $f(x) = 6x - 9$

6) $h(x) = x^2 - 5x + 9$

7) $g(t) = 8t^3$

8) $C(n) = 15n + 90$

Evaluate each function. *Substitute the value for x into the equation.*

9) $w(x) = 4x + 5$; Find $w(-8)$

10) $h(x) = 2x + 5$; Find $h(2)$

11) $g(n) = 4n - 5$; Find $g(6)$

12) $g(n) = n + 2$; Find $g(1)$

13) $g(n) = n^2 + 4n$; Find $g(2)$

14) $h(n) = 3n^2 - 4$; Find $h(0)$

15) $h(n) = -3n^2 - 5n$; Find $h(2)$

16) $h(x) = x^3 + 4$; Find $h(-5)$

13. $f(x) = 2x^2 - 3$

14. $h(x) = x^3 - 4x$

15. $f(x) = (x+2)^2 - 6$

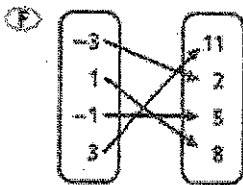
If $f(x) = 2x - 3$, $g(x) = x^3 - 2$, and $h(x) = x^2 - 3x + 5$, find each of the following:

16. $f(4) =$

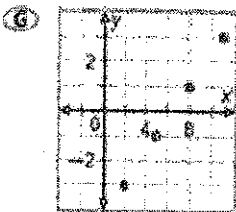
17. $h(-3) =$

18. $g(-2) =$

20. Which is NOT a correct way to describe the function $\{(-3, 2), (1, 8), (-1, 5), (3, 11)\}$?



H Domain: $\{-3, 1, -1, 3\}$
Range: $\{2, 8, 5, 11\}$



J

x	y
-3	2
-1	5
1	8
3	11

21. Use the table to answer the following:

x	-3	-1	0	1	3
y	5	7	9	11	13

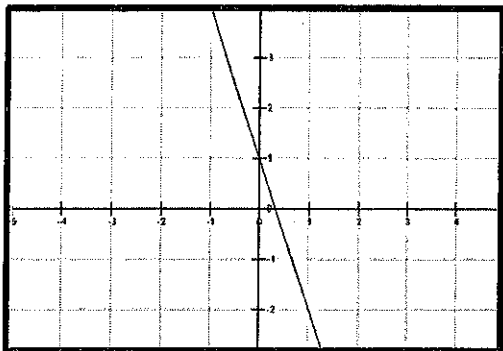
a. Express the relation as ordered pairs.

b. Give the domain and range of the relation.

c. Does the relation represent a function? Explain.

For each, evaluate $f(1)$. Use the function statement to create an ordered pair solution.

1.



$f(1) = \underline{\hspace{2cm}} \rightarrow (\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

2.

x	0	1	2	3
f(x)	-3	2	-4	1

$f(1) = \underline{\hspace{2cm}} \rightarrow (\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

3. $f(x) = 3x + 13$

$f(1) = \underline{\hspace{2cm}} \rightarrow (\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

When you are given a problem in the form $f(1) = \underline{\hspace{1cm}}$, the number 1 represents the (-value), and your job is to find the corresponding y-value. What if instead you were given $f(\underline{\hspace{1cm}}) = 1$. In this case, the number 1 represents the (-value) and your job would be to give the x-value that result in this output. Let's try a few:

Using each of the functions ABOVE, determine where $f(x) = 1$.

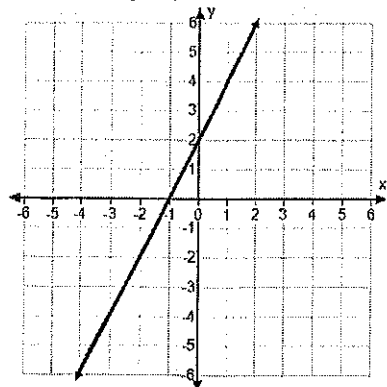
1. $f(\underline{\hspace{1cm}}) = 1$ (graph) 2. $f(\underline{\hspace{1cm}}) = 1$ (table) 3. $f(\underline{\hspace{1cm}}) = 1$ (function)

Exercises: Fill in the blank with the correct x-value.

4. If $g(x) = 4x - 7$, determine when $g(x) = 21$.
 $g(\underline{\hspace{1cm}}) = 21$

5. If $h(x) = 3 - 2x$, determine when $h(x) = -9$.
 $h(\underline{\hspace{1cm}}) = -9$

6. Use the graph to fill in each blank.



- a.) $f(-4) = \underline{\hspace{1cm}}$ c.) $f(\underline{\hspace{1cm}}) = -4$
 b.) $f(0) = \underline{\hspace{1cm}}$ d.) $f(\underline{\hspace{1cm}}) = 0$

7. Use the table to fill in each blank.

x	-2	0	3	5
f(x)	5	1	2	0

- a.) $f(5) = \underline{\hspace{1cm}}$ c.) $f(\underline{\hspace{1cm}}) = 5$
 b.) $f(0) = \underline{\hspace{1cm}}$ d.) $f(\underline{\hspace{1cm}}) = 0$

1. Evaluate the following expressions given the functions below:
 Show your substitutions (the expression with the variable replaced by a number).

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

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

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

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

REMEMBER***

$f(-3)$ means -3 is your input and you plug it in for x

$f(x) = -3$ means that your whole function is = to -3 and you plug into the y.

a. $g(10) =$ _____

e. $h(a) =$ _____

b. $f(3) =$ _____

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

c. $h(-2) =$ _____

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

d. $j(7) =$ _____

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

2. Translate the following statements into coordinate points and graph:

a. $f(-1) = 1$ (,) ex (x, f(x))

b. $f(2) = 7$ (,)

c. $f(1) = -1$ (,)

d. $f(3) = -5$ (,)

e. $f(4) = 2$ (,)

