Swift - Day 3
Lesson 3

NAME _____ DATE _____ PERIOD Alg. I

1-7 Study Guide and Intervention

Functions

Identify Functions Relations in which each element of the domain is paired with exactly one element of the range are called **functions**.

Example 1

Determine whether the relation {(6, –3), (4, 1), (7, –2), (–3, 1)} is a function. Explain.

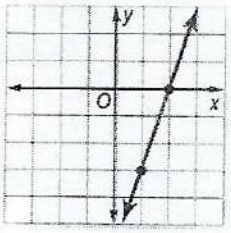
Since each element of the domain is paired with exactly one element of the range, this relation is a function.

Example 2

Determine whether $3x - y = 6$ is a function.

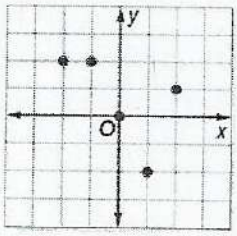
Since the equation is in the form $Ax + By = C$, the graph of the equation will be a line, as shown.

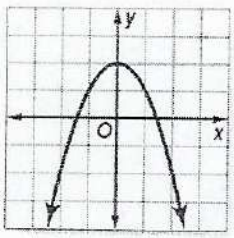
If you draw a vertical line through each value of x, the vertical line passes through just one point of the graph. Thus, the line represents a function.

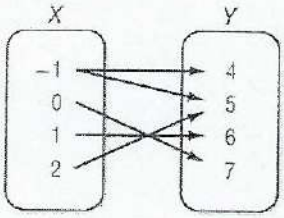


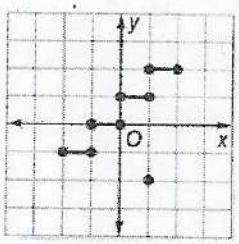
Exercises

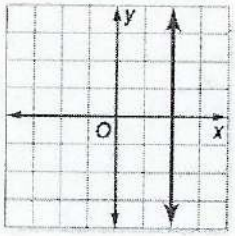
Determine whether each relation is a function.

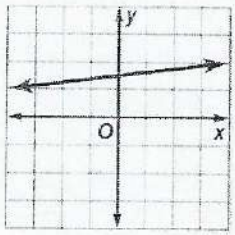
1. 

2. 

3. 

4. 

5. 

6. 

7. {(4, 2), (2, 3), (6, 1)}

8. {(–3, –3), (–3, 4), (–2, 4)}

9. {(–1, 0), (1, 0)}

10. $-2x + 4y = 0$

11. $x^2 + y^2 = 8$

12. $x = -4$

Swift – Day 3
Lesson 3

NAME _____ DATE _____ PERIOD Alg. I

1-7 Study Guide and Intervention *(continued)*
Functions

Find Function Values Equations that are functions can be written in a form called **function notation.** For example, $y = 2x - 1$ can be written as $f(x) = 2x - 1$. In the function, x represents the elements of the domain, and $f(x)$ represents the elements of the range. Suppose you want to find the value in the range that corresponds to the element 2 in the domain. This is written $f(2)$ and is read "f of 2." The value of $f(2)$ is found by substituting 2 for x in the equation.

Example: If $f(x) = 3x - 4$, find each value.

a. $f(3)$

$f(3) = 3(3) - 4$	Replace x with 3.
$= 9 - 4$	Multiply.
$= 5$	Simplify.

b. $f(-2)$

$f(-2) = 3(-2) - 4$	Replace x with -2.
$= -6 - 4$	Multiply.
$= -10$	Simplify.

Exercises

If $f(x) = 2x - 4$ and $g(x) = x^2 - 4x$, find each value.

1. $f(4)$
2. $g(2)$
3. $f(-5)$
4. $g(-3)$
5. $f(0)$
6. $g(0)$
7. $f(3) - 1$
8. $f\left(\frac{1}{4}\right)$
9. $g\left(\frac{1}{4}\right)$
10. $f(a^2)$
11. $f(k + 1)$
12. $g(2n)$
13. $f(3x)$
14. $f(2) + 3$
15. $g(-4)$

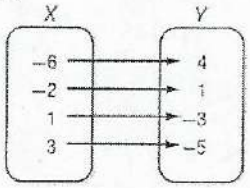
Swift - Day 3
Lesson 3

NAME _____ DATE _____ PERIOD Alg. I

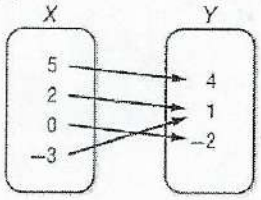
1-7 Skills Practice
Functions

Determine whether each relation is a function.

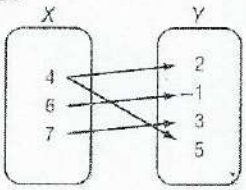
1.



2.



3.



4.

x	y
4	−5
−1	−10
0	−9
1	−7
9	1

5.

x	y
2	7
5	−3
3	5
−4	−2
5	2

6.

x	y
3	7
−1	1
1	0
3	5
7	3

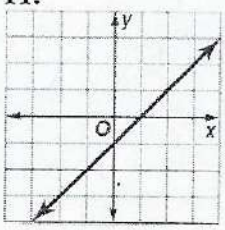
7. {(2, 5), (4, −2), (3, 3), (5, 4), (−2, 5)}

8. {(6, −1), (−4, 2), (5, 2), (4, 6), (6, 5)}

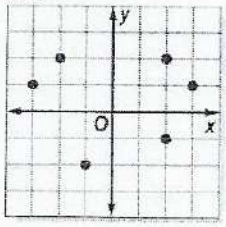
9. $y = 2x - 5$

10. $y = 11$

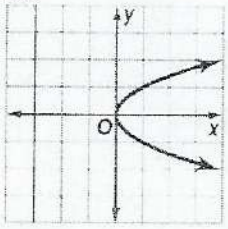
11.



12.



13.



If $f(x) = 3x + 2$ and $g(x) = x^2 - x$, find each value.

14. $f(4)$

15. $f(8)$

16. $f(-2)$

17. $g(2)$

18. $g(-3)$

19. $g(-6)$

20. $f(2) + 1$

21. $f(1) - 1$

22. $g(2) - 2$

23. $g(-1) + 4$

24. $f(x + 1)$

25. $g(3b)$