

Function Notation and Evaluating Functions Practice Worksheet A

Name Key

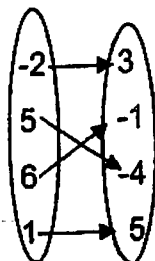
Class Period \_\_\_\_\_

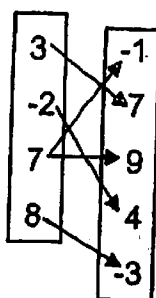
A function is a set of ordered pairs in which each element from the domain (set of all x - coordinates) is paired with one and only one element from the range (set of all y - coordinates).

1. Decide if the following relations are functions (answer yes or no). If the relation is a function, state the domain and range.

1.  $\{(-2, 5), (3, 9), (5, 6), (-3, 9)\}$   
 yes Domain:  $\{-3, -2, 3, 5\}$   
 Range:  $\{5, 6, 9\}$

2.  $\{(3, 8), (-4, 9), (-2, 3), (3, 1)\}$   
 NO

3.  Domain:  $\{-2, 1, 5, 6\}$   
 Range:  $\{-4, -1, 3, 5\}$   
 yes

4.  NO

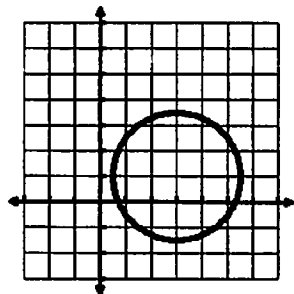
5. x: -3 6 1 -8 0  
 y: 5 -2 3 -2 0  
 yes  
 Domain:  $\{-8, -3, 0, 1, 6\}$   
 Range:  $\{-2, 0, 3, 5\}$

6. 

x	5	2	4	5	1
y	3	-9	-5	2	-1

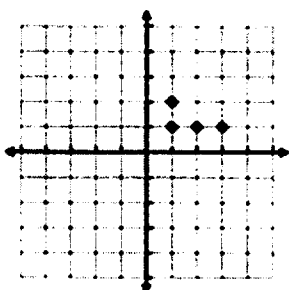
 NO

7. A person's cell phone number vs. their name.  
 yes

10.  NO

8. A person's name vs. their cell phone number.  
 NO

9. A person's name vs. their social security number.  
 NO

11.  NO

II. Function Notation is a form of substitution. Use the following to evaluate the functions.

$$f(x) = 2x - 3$$

$$g(x) = \sqrt{x+5}$$

$$h(x) = x^2 - 3x + 5$$

$$k(x) = \begin{cases} 2x - 3 & \text{if } x > -2 \\ 3 - x & \text{if } x \leq -2 \end{cases}$$

12.  $f(-2)$

$$f(-2) = 2(-2) - 3$$

$$f(-2) = -4 - 3$$

$$\boxed{f(-2) = -7}$$

13.  $g(7)$

$$g(7) = \sqrt{7+5}$$

$$g(7) = \sqrt{12}$$

$$\boxed{g(7) = 2\sqrt{3}}$$

14.  $h(-3)$

$$h(-3) = (-3)^2 - 3(-3) + 5$$

$$h(-3) = 9 + 9 + 5$$

$$\boxed{h(-3) = 23}$$

15.  $k(-2)$

$$k(-2) = 3 - (-2)$$

$$k(-2) = 3 + 2$$

$$\boxed{k(-2) = 5}$$

16.  $k(3)$

$$k(3) = 2(3) - 3$$

$$k(3) = 6 - 3$$

$$\boxed{k(3) = 3}$$

17.  $f(2x+2)$

$$f(2x+2) = 2(2x+2) - 3$$

$$f(2x+2) = 4x + 4 - 3$$

$$\boxed{f(2x+2) = 4x + 1}$$

18.  $k(-5)$

$$k(-5) = 3 - (-5)$$

$$k(-5) = 3 + 5$$

$$\boxed{k(-5) = 8}$$

19.  $h(x-1)$

$$h(x-1) = (x-1)^2 - 3(x-1) + 5$$

$$h(x-1) = (x-1)^2 - 3x + 3 + 5$$

$$\boxed{h(x-1) = (x-1)^2 - 3x + 8}$$