

# Review Worksheet for Unit 3 Quiz #1

Name: KEY

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

Decide whether each relation is a function. If it is a function, state the domain and range.

1.  $\{(9,6), (5,9), (9,5), (6,4)\}$

Relation

2.  $\{(3,8), (9,7), (4,6), (8,-7)\}$

Function

D:  $\{3,4,8,9\}$

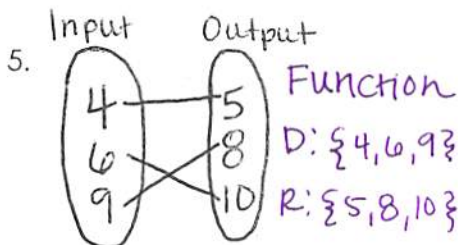
R:  $\{-7,6,7,8\}$

3.  $\{1,-9\}, (45,6), (6,7), (7,3)\}$

Function

D:  $\{1,6,7,45\}$

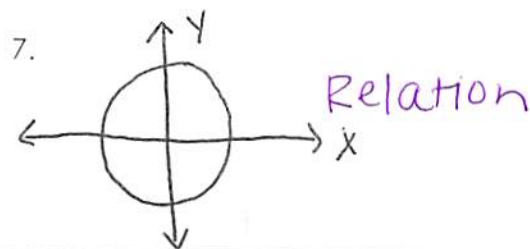
R:  $\{-9,3,6,7\}$



6. 

x	y
3	0
2	-1
5	-2
3	-3

 Relation



Evaluate each of the following.

9.  $f(x) = 9 - 8x$ ; Find  $f(-7)$

$$f(-7) = 9 - 8(-7)$$

$$= 9 + 56$$

$$\boxed{f(-7) = 65}$$

10.  $h(x) = 4 + x$ ; Find  $h(-5)$

$$h(-5) = 4 + (-5)$$

$$= -1$$

$$\boxed{h(-5) = -1}$$

11.  $f(x) = 6 - 5x$ ; Evaluate:  $f(x+2)$

$$f(x+2) = 6 - 5(x+2)$$

$$= 6 - 5x - 10$$

$$\boxed{f(x+2) = -5x - 4}$$

Use the following functions to evaluate numbers 12 - 15.

$f(x) = 7x + 2$

$g(x) = 3x^2 - 2x + 4$

$h(x) = 5x^4$

12.  $f(x) + g(x)$

$$f(x) + g(x) =$$

$$7x + 2 + 3x^2 - 2x + 4$$

$$\boxed{f(x) + g(x) = 3x^2 + 5x + 6}$$

13.  $f(x) - h(x)$

$$f(x) - h(x) =$$

$$7x + 2 - (5x^4)$$

$$\boxed{f(x) - h(x) = -5x^4 + 7x + 2}$$

14.  $h(x) \cdot f(x)$

$$h(x) \cdot f(x) =$$

$$5x^4(7x + 2)$$

$$\boxed{h(x) \cdot f(x) = 35x^5 + 10x^4}$$

15.  $3h(x) - 3f(x)$

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

$$3(5x^4) - 3(7x + 2)$$

$$15x^4 - 21x - 6$$

$$\boxed{3h(x) - 3f(x) = 15x^4 - 21x - 6}$$

Complete each function table below.

16.  $f(x) = 5x - 6$

x	f(x)
-1	-11
0	-6
1	-1
2	4

$$f(-1) = 5(-1) - 6$$

$$f(0) = 5(0) - 6$$

$$f(1) = 5(1) - 6$$

$$f(2) = 5(2) - 6$$

17.  $g(x) = 4x^2 + 2$

x	g(x)
-1	6
0	2
1	6
2	18

$$g(-1) = 4(-1)^2 + 2$$

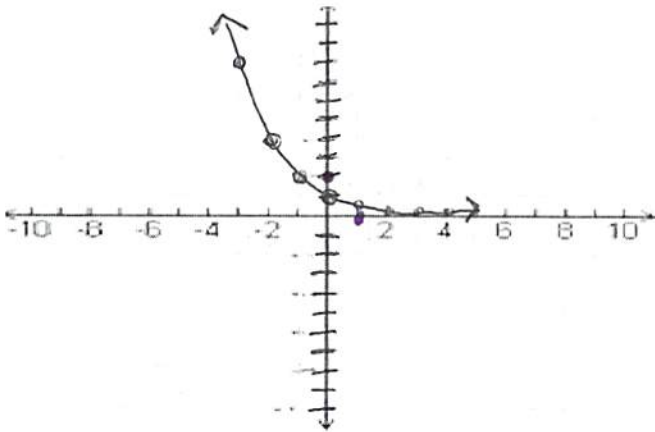
$$g(0) = 4(0)^2 + 2$$

$$g(1) = 4(1)^2 + 2$$

$$g(2) = 4(2)^2 + 2$$

8. Use the graph and table to answer the following questions.

$$f(x) = \left(\frac{1}{2}\right)^x$$



x	g(x)
-2	6
-1	4
0	2
1	0
2	-2

a)  $f(-2) = 4$ .

b)  $g(2) = -2$ .

c)  $x = -1$ , if  $f(x) = 2$

d)  $x = 1$ , if  $g(x) = 0$

e) Would the two functions ever intersect? YES. If yes, where? between  $x=0$  &  $x=1$

19. When building a bridge, there are certain components that must be looked at. Let's say that we are building a bridge in the nearby town. It will cost \$6000 for all of the materials to construct the bridge. It will also cost the city \$800 for every square mile that the bridge will use.

a) Write a function to represent this information.

$$B(x) = 6000 + 800x$$

b) If we need 14 square miles to be able to build the bridge, how much total will it cost to build the bridge?

$$B(14) = 6000 + 800(14)$$

$$B(14) = \$17,200$$

Simplify the following:

20.  $4x(2x - 6) - 8(9x^2 - 3x)$

$$8x^2 - 24x - 72x^2 + 24x$$

$$\boxed{-64x^2}$$

21.  $7x + 4 + 2x - 9$

$$\boxed{9x - 5}$$

22.  $-8m^2(4n + 1) - 5m(4m + 2)$   
 $-32m^2n - 8m^2 - 20m^2 - 10m$

$$\boxed{-28m^2 - 10m - 32m^2n}$$

23.  $(3x^4)^2(-2xy^3)^3$

$$(3^2x^8)(-2^3x^3y^9)$$

$$(9x^8)(-8x^3y^9)$$

$$\boxed{-72x^{11}y^9}$$

24.  $(-xy)^3(-x^2y)^4$

$$(-1^3x^3y^3)(-1^4x^8y^4)$$

$$(-1x^3y^3)(x^8y^4)$$

$$\boxed{-x^{11}y^7}$$

25.  $\frac{(-2xy^2)^3}{4x(3y)^2}$

$$\frac{(-2)^3x^3y^6}{4x9y^2} = \frac{-8x^3y^6}{36xy^2}$$

$$\boxed{-\frac{2x^2y^4}{9}}$$