Math 8 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

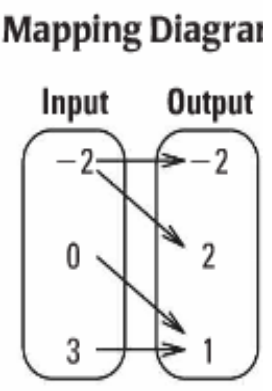
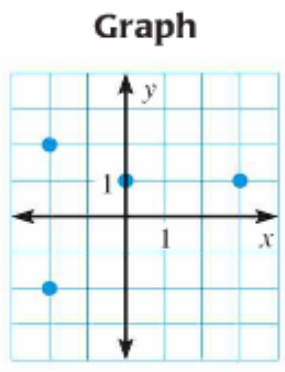
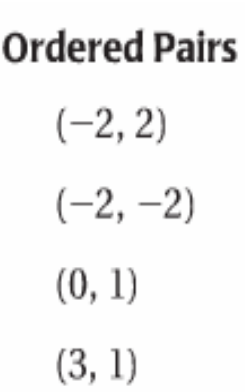
Functions Test Review

What is a relation? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Domain: the set of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

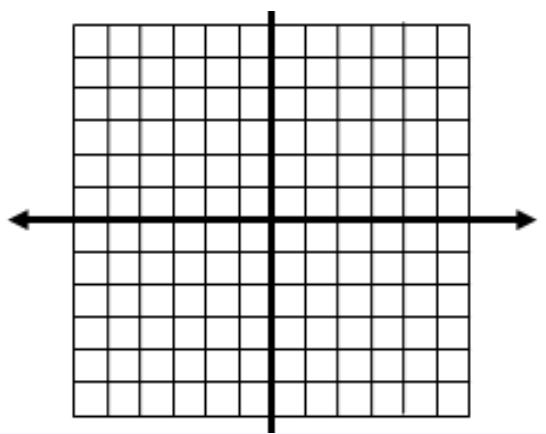
Range: the set of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

A relation can be represented in the following ways:



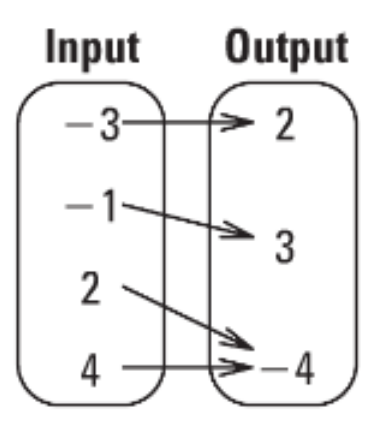
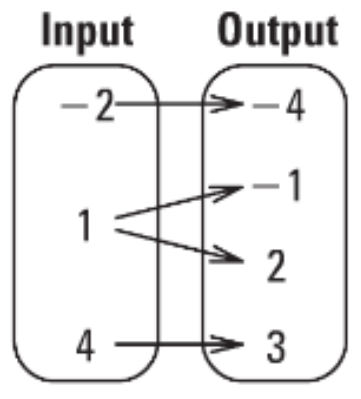
Example 1:  
Consider the relation given by the following ordered pairs: (-2, -3), (-1, 1), (1, 3), (2, -2), and (3, 1)

1. Identify the domain and range:  
   Domain=  
   Range =
2. Represent the relation using a graph and a mapping diagram:

 Mapping Diagram

Input Output

Is the relation a function? Explain.



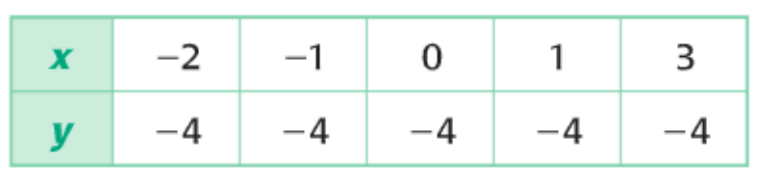
Function? \_\_\_\_\_\_\_\_ Function? \_\_\_\_\_\_\_\_\_

Example 2:  
Consider the relation given by the following ordered pairs: (-4, 3), (-2, 1), (0, 3),   
(1, -2), and (-2, -4)

1. Identify the domain and range:  
   Domain=  
   Range =
2. Represent the relation using a table and a mapping diagram:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x |  |  |  |  |  |
| y |  |  |  |  |  |

Input Output

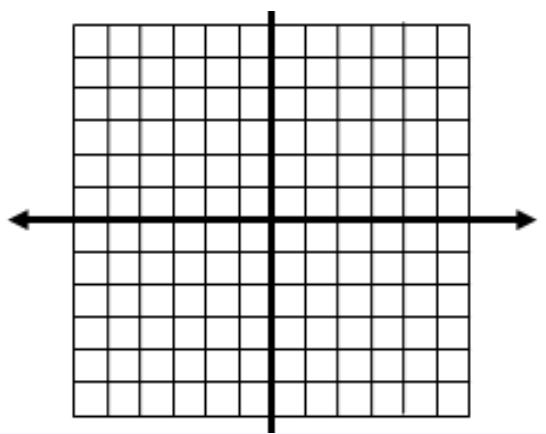
Example 3:  
Is the following relation a function? Why or why not?

Find the indicated values for g(x) = 3x+1

1. g(2) 2. g(0) 3. g(1/3)

4. g(-5) 5. g(-10) 6. g(50)

Find the indicated values by using the graph.

7. h(-4) 8. h(-3) 9. h(-2)

10. h(-1) 11. h(0) 12. h(1)

Graphing Linear Functions

Example: y = 3x – 5

x is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and y is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The ordered pair (x, y) is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of an equation if substituting x and y into the equation produces a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* Is the ordered pair (2, 1) a solution of y = 3x – 5?
* Is (-3, 2) a solution of y = x + 1?

Graphing Equations Using Table of Values

|  |  |
| --- | --- |
| x | y |
|  |  |
|  |  |
|  |  |
|  |  |

Graph the equation y = 3x – 5

1. Construct a table of values
2. Plot the points.
3. Connect the points with a line

|  |  |
| --- | --- |
| x | y |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Graph the equation 

1. Construct a table of values.
2. Choose x-values that would   
     
   create integer y-values
3. Connect the points with a line

Graphing Non-Linear Functions

|  |  |
| --- | --- |
| x | y |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Graph the equation y =

1. Construct a table of values
2. Plot the points
3. Connect the points with a U.

|  |  |
| --- | --- |
| x | y |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Graph the equation x =

1. Construct a table of values.
2. Choose y-values.

Find the x-value.

1. Connect with a sideways U.

Graph the equation xy =

|  |  |
| --- | --- |
| x | y |
| -6 |  |
| -3 |  |
| -2 |  |
| 2 |  |
| 3 |  |
| 6 |  |

1. Construct a table of values.
2. Choose y-values.

Find the x-value.

1. Connect with a sideways U.

Linear Functions can be written in the form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The graph of a linear function is a \_\_\_\_\_\_\_\_\_\_.

Function Notation of a linear function is:

f(x) = mx + b (replace “y” with “f(x)”)

f(x) is read “the value of f at x” or “f of x”

\*\*This means, what output do you get when you plug in an input of x\*\*

Circle if the relation is linear or non-linear. Then evaluate the function.

1.  f(-4) = \_\_\_\_\_ linear non-linear
2.  f(-4) = \_\_\_\_\_ linear non-linear
3. f(-3)= \_\_\_\_\_\_\_\_\_\_ linear non-linear
4. f(-2) = \_\_\_\_\_\_\_\_\_ linear non-linear
5. k(5) = \_\_\_\_\_\_\_\_\_\_ linear non-linear
6. g(3) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
7. m(3) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
8. m(-3) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
9. m(10) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
10. m(40) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
11. m(-50) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
12. m(-18) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
13. m(-5) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
14. b(4) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
15. m(9) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
16. c(7) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
17. m(-6) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
18. m(1) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
19. r(2) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
20. m() = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
21. m(3) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear
22. m()) = \_\_\_\_\_\_\_\_\_\_\_ linear non-linear

Write a paragraph about functions. Use the following words: input, output, range, domain, relation, function, order pairs, graph, linear, equation, non-linear, mapping and table.