

Notes: Function or Not a Function????

Determine which of the relations below are functions. Circle the correct answer.

Sets of Coordinates:

1) $\{(-2, 7), (-1, 5), (0, 3), (1, 1), (2, 1)\}$

Function or Not a Function

2) $\{(-7, 20), (3, 5), (0, 5), (-2, 0), (6, -4), (-6, -9), (4, 4)\}$

Function or Not a Function

3) $\{(4, 8), (-3, -2), (9, 6), (2, -1), (-4, -5), (2, 7), (-8, 0)\}$

Function or Not a Function

Tables of Values:

4)

x	y
0	-19
1	-12
2	-4
3	3
4	13
5	27

5)

x	y
-5	8
-3	8
-1	-2
1	-2
3	11
5	23

Does Not matter

6)

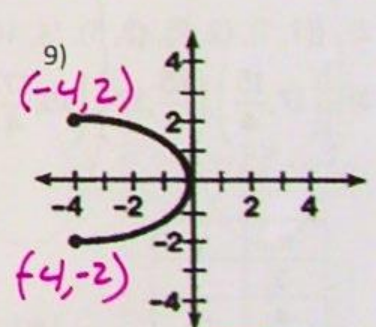
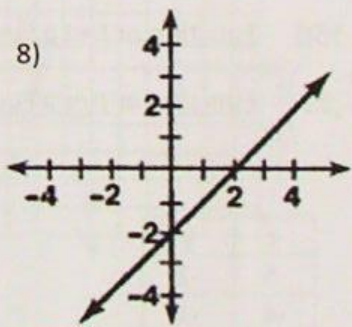
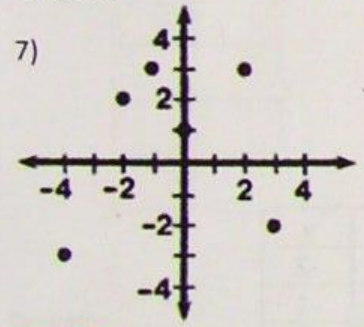
x	y
-2	-7
-2	5
0	-16
2	0
2	6

Function or Not a Function

Function or Not a Function

Function or Not a Function

Graphs:

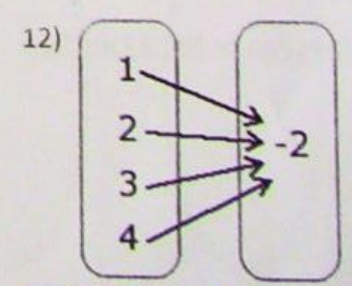
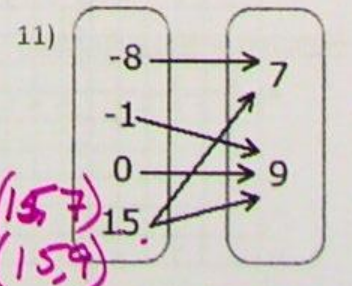
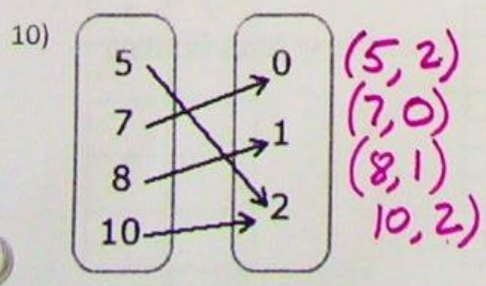


Function or Not a Function

Function or Not a Function

Function or Not a Function

Mapping Diagrams:



Function or Not a Function

Function or Not a Function

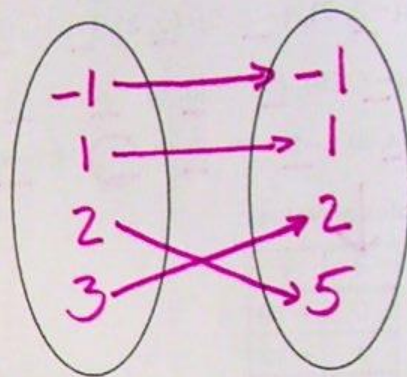
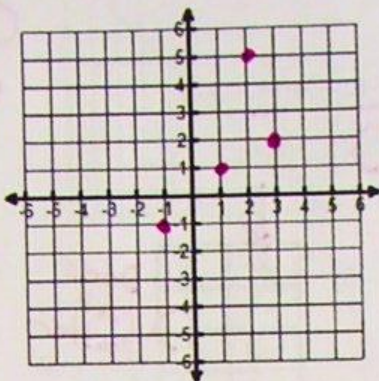
Function or Not a Function

More Notes: Representing Relations

Express the relation as a table, a graph, and a mapping. Then determine the domain and range. Determine whether each relation is a function.

13) $\{(-1, -1), (1, 1), (2, 5), (3, 2)\}$

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



Domain: -1, 1, 2, 3

Range: -1, 1, 2, 5

Function? Yes

x or inputs

y or outputs

Homework: Function or Not a Function???

Determine which of the relations below are functions. Circle the correct answer.

1) $\{(1, -2), (-2, 0), (-1, 2), (1, 3)\}$ Function or Not a Function

2) $\{(1, 1), (2, 2), (3, 5), (4, 10), (5, 15)\}$ Function or Not a Function

3) $\left\{ \left(17, \frac{15}{4}\right), \left(\frac{15}{4}, 17\right), \left(15, \frac{17}{4}\right), \left(\frac{17}{4}, 15\right) \right\}$ Function or Not a Function

x	y
-5	-2
-4	-1
-3	0
-4	1
-5	2

Function or Not a Function

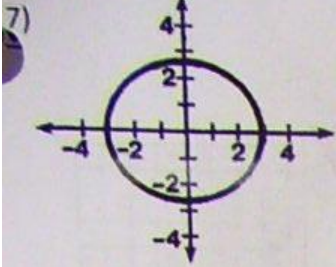
x	y ⁽⁶⁾
-5	-2
-4	-1
-3	0
-2	-1
-1	-2

Function or Not a Function

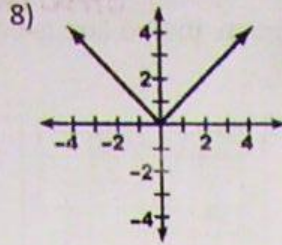
x	y
-5	-2
-4	-1
-3	0
-2	-1
-1	-2

Function or Not a Function

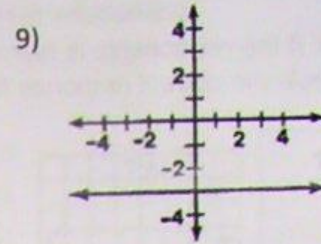
Homework is continued on the next page



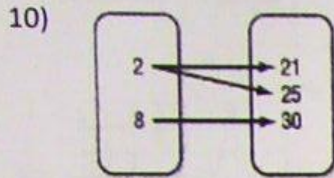
Function or Not a Function



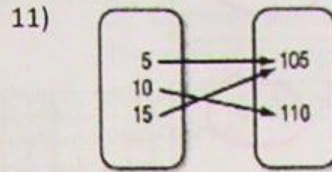
Function or Not a Function



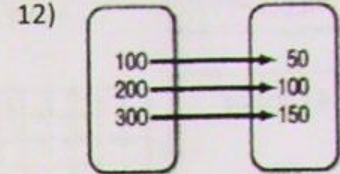
Function or Not a Function



Function or Not a Function



Function or Not a Function



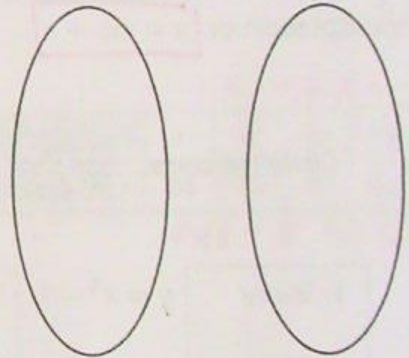
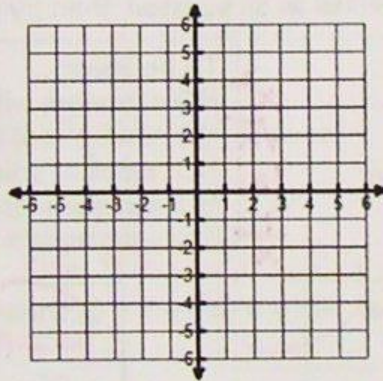
Function or Not a Function

Representing Relations: Express the relation as a table, a graph, and a mapping. Then determine the domain and range. Determine whether each relation is a function.

*Least to greatest
and only write #'s once*

13) $\{(0, 4), (-4, -4), (-2, 3), (4, 0)\}$

x	y



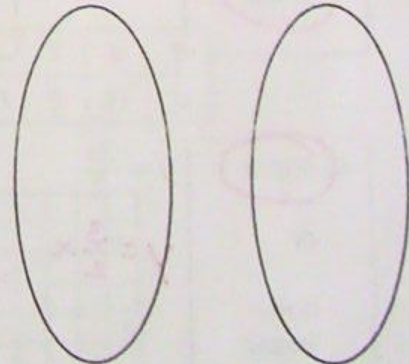
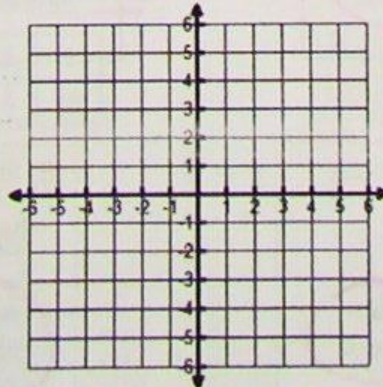
Domain: _____

Range: _____

Function? _____

14) $\{(3, -2), (1, 0), (-2, 4), (3, 1)\}$

x	y



Domain: _____

Range: _____

Function? _____

Linear or Nonlinear

Graph: If the relationship is represented as a graph, then a line is ^(straight) linear!
 Circle the correct response for each.

1) linear or non-linear		2) linear or non-linear		3) linear or non-linear	
4) linear or non-linear		5) linear or non-linear		6) linear or non-linear	

Equation: If the relationship is represented as an equation, then try to write the equation in slope-intercept form or $y = mx + b$

Circle the correct response for each.

To be linear....
 NO exponent with the variables
 NO square root with the variables
 NO absolute value bars around the variables
 NO variable in the denominator.

1) linear or non-linear	$y = x^3 - 1$	2) linear or non-linear	$y = 4x^2 + 9$	3) linear or non-linear	$y = 0.6x$
4) linear or non-linear	$y = \frac{3x}{2}$ $y = \frac{3}{2}x$	5) linear or non-linear	$y = \frac{4}{x}$	6) linear or non-linear	$y = \frac{8}{x} + 5$

Table: If the relationship is represented as a table, then the rate of change must be the same through the table. If the rate of change is constant this is called the slope in a linear relationship.

x	y
2	50
4	35
6	20
8	5

As x increases by 2, y decreases by 15 each time. The rate of change is constant, so this function is linear.

x	y
1	1
4	16
7	49
10	100

As x increases by 3, y increases by a greater amount each time. The rate of change is not constant, so this function is nonlinear.

Circle the correct response for each.

1) linear
or
 non-linear

x	0	5	10	15
y	20	16	12	8

+5 +5 +5
-4 -4 -4

2) linear
or
 non-linear

x	0	2	4	6
y	0	2	8	18

+2 +2 +2
+2 +6 +10

3) linear
or
 non-linear

x	0	3	6	9
y	-3	9	21	33

+3 +3 +3
+12 +12 +12

4) linear
or
 non-linear

Length (in.)	1	4	8	10
Width (in.)	64	16	8	6.4

+3 +4 +2
748 - 8 - 1.6

$$m = \frac{12}{3} = 4$$

Practice.

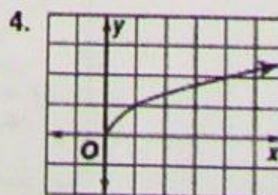
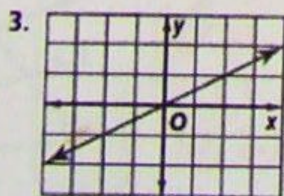
Determine whether each table, graph, or equation represents a *linear* or *nonlinear* function. Explain.

1.

x	0	1	2	3
y	1	3	6	10

2.

x	0	3	6	9
y	-3	9	21	33

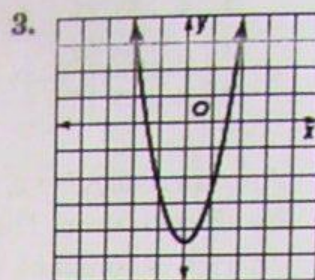
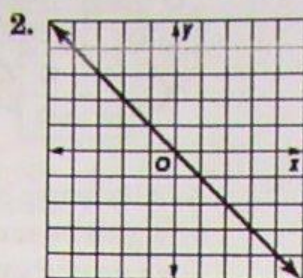
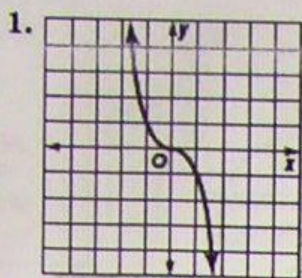


5. $y = \frac{x}{3}$

6. $y = 2x^2$

On your own:

Determine whether each graph, equation, or table represents a *linear* or *nonlinear* function. Explain.



4. $y = \frac{x}{2} + 1$

5. $y = \frac{2}{x} + 10$

6. $y = 8x$

7. $y = 6$

8. $2x - y = 5$

9. $y = x^2 + 4$

10. $y + 4x^2 - 1 = 0$

11. $2y - 8x + 11 = 0$

12. $y = \sqrt{3x} - 2$

13.

x	y
1	8
2	5
3	2
4	-1

14.

x	y
6	1
12	3
18	6
24	10

15.

x	y
20	-4
15	-2
10	0
5	2