

Functions Quiz Study Guide

Set 1

Find the domain and range of each relation.

1.  $\{(-3, -7), (-1, -3), (0, -1), (2, 3), (4, 7)\}$

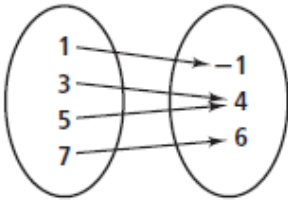
2.  $\{(-5, -4), (-4, 2), (0, 2), (1, 3), (2, 4)\}$

Determine whether each of the following relations is a function.

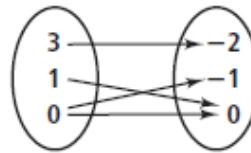
3.  $\{(-4, -3), (-2, -2), (0, -1), (1, -\frac{1}{2})\}$

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

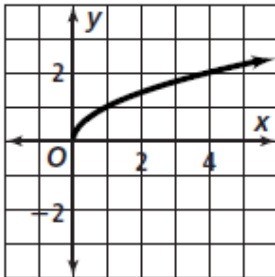
5.



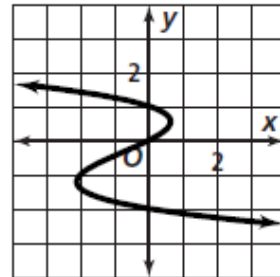
6.



7.



8.



Set 2

Write a function rule for each table.

1.

| x | y |
|---|---|
| 0 | 3 |
| 2 | 5 |
| 4 | 7 |
| 6 | 9 |

2.

| x | y  |
|---|----|
| 0 | 0  |
| 1 | 3  |
| 3 | 9  |
| 5 | 15 |

3.

| x  | y  |
|----|----|
| 5  | 0  |
| 10 | 5  |
| 15 | 10 |
| 20 | 15 |

Write a function rule for each table.

6.

| x  | y  |
|----|----|
| -4 | -2 |
| -2 | -1 |
| 6  | 3  |
| 8  | 4  |

7.

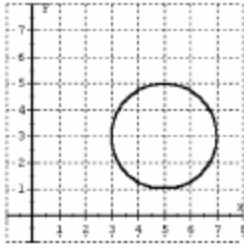
| x  | y  |
|----|----|
| -3 | 9  |
| 0  | 0  |
| 1  | 1  |
| 5  | 25 |

8.

| x | y  |
|---|----|
| 0 | 20 |
| 2 | 18 |
| 4 | 16 |
| 8 | 12 |

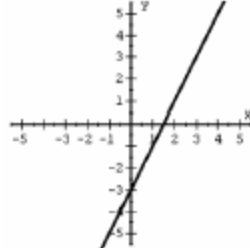
Set 3:

State whether each graph represents a function or not.



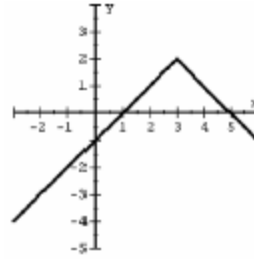
$$(x - 5)^2 + (y - 3)^2 = 4$$

Function?



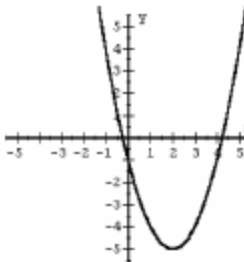
$$y = 2x - 3$$

Function?



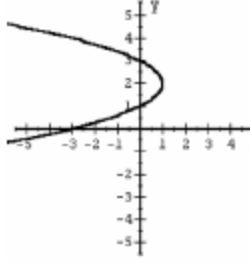
$$y = -|x - 3| + 2$$

Function?



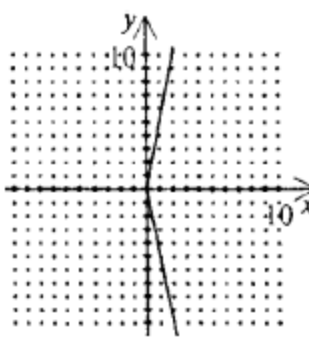
$$y = (x - 2)^2 - 5$$

Function?

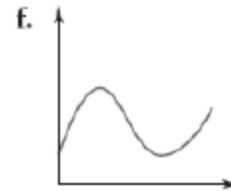
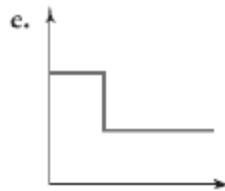
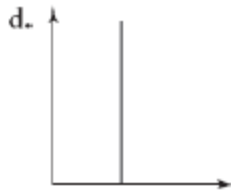
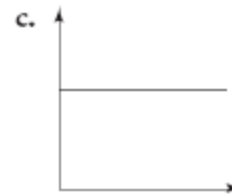
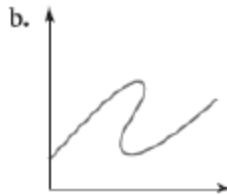
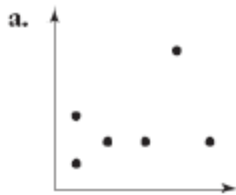


$$x = -(y - 2)^2 + 1$$

Function?



Find whether each graph represents a function.



Set 4:

For each table or graph below, determine if it is a function or not. Identify the DOMAIN & RANGE. Use both set and interval notation, if possible

1

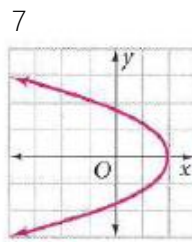
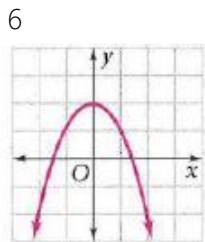
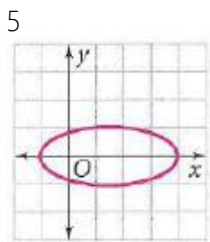
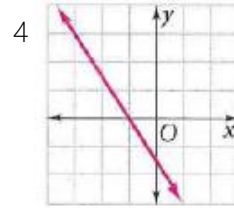
| x | y  |
|---|----|
| 1 | -3 |
| 6 | -2 |
| 9 | -1 |
| 1 | 3  |

2

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

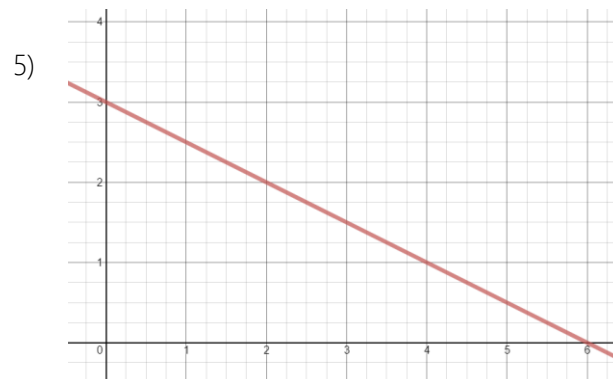
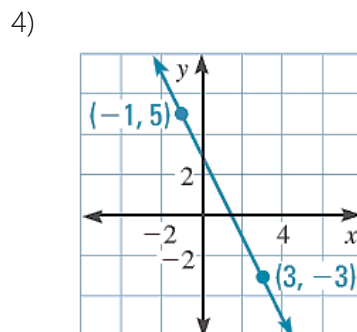
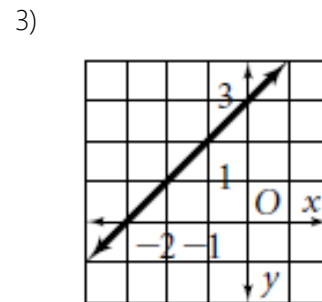
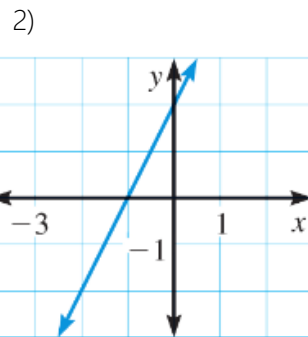
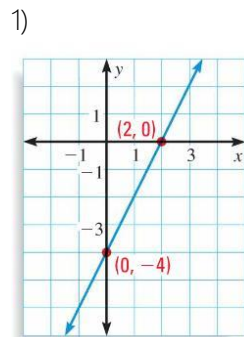
3

| x  | y  |
|----|----|
| -4 | -4 |
| -1 | -4 |
| 0  | -4 |
| 3  | -4 |



Set 5:

Write a rule for each graph provided



Set 6:

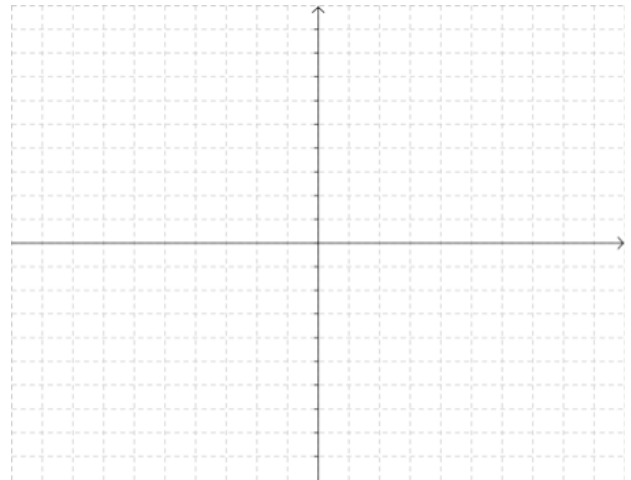
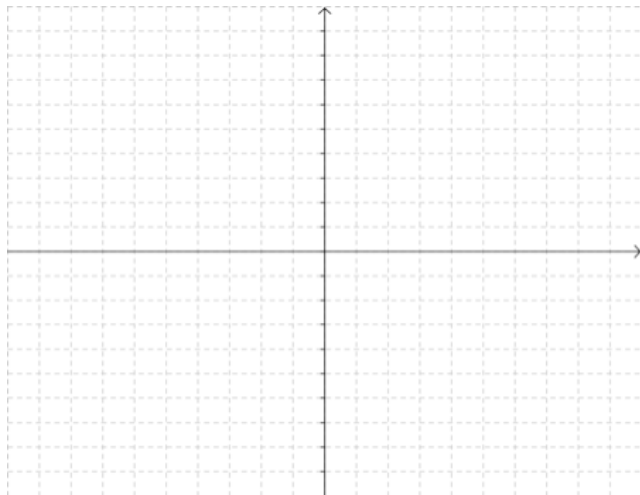
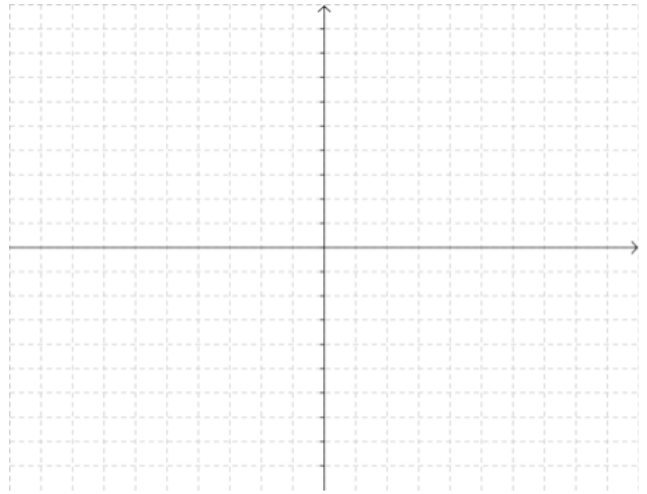
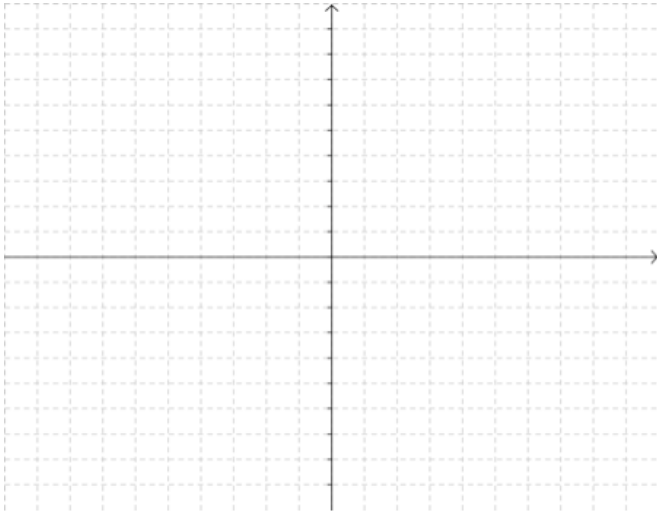
Make a graph from each function. (Hint: make a table of values first)

1.  $y = x + 2$

2.  $-3y - 9 = x$

3.  $y = 2x - 1$

4.  $y - \frac{3}{5}x = -1$



Answers for Set 1:

1.  $d = \{-3, -1, 0, 2, 4\}; r = \{-7, -3, -1, 3, 7\}$

2.  $d = \{-5, -4, 0, 1, 2\}; r = \{-4, -2, 2, 3, 4\}$  3. yes

4. no 5. yes 6. no 7. yes 8. no

Answers for Set 2:

1.  $y = x + 3$

2.  $y = 3x$

3.  $y = x - 5$

6.  $y = \frac{1}{2}x$

7.  $y = x^2$

8.  $y = 20 - x$

Answers to Set 3:

*From top left to bottom right:*

The relation is not a function

The relation is a function

The relation is not a function

The relation is not a function

The relation is a function

The relation is not a function

The relation is not a function

The relation is not a function

The relation is a function

The relation is not a function

The relation is a function

The relation is a function

#### Answers to Set 4:

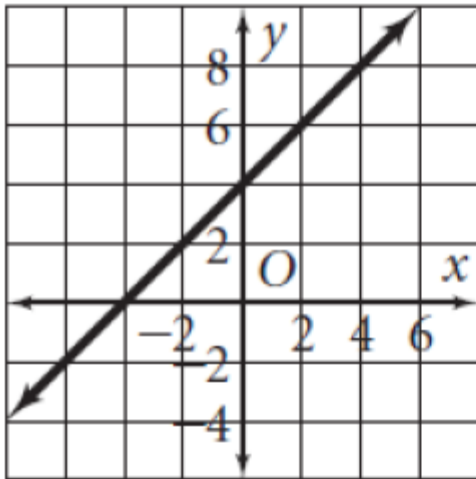
1. The relation is not a function
  - a. Domain:  $\{1,6,9\}$
  - b. Range:  $\{-3,-2,-1,3\}$
2. The relation is not a function
  - a. Domain:  $\{0,3,5\}$
  - b. Range:  $\{2,1,-1,3\}$
3. The relation is a function
  - a. Domain:  $\{-4,-1,0-3\}$
  - b. Range:  $\{-4\}$
4. The relation is a function
  - a. Domain:
    - i. Set Notation:  $\{x|\mathbb{R}\}$  or  $\{-\infty < x < \infty\}$
    - ii. Interval Notation:  $(-\infty, \infty)$
  - b. Range:
    - i. Set Notation:  $\{y|\mathbb{R}\}$  or  $\{-\infty < y < \infty\}$
    - ii. Interval Notation:  $(-\infty, \infty)$
5. The relation is not a function
  - a. Domain:
    - i. Set Notation:  $\{x|-1 \leq x \leq 4\}$
    - ii. Interval Notation:  $[-1,4]$
  - b. Range:
    - i. Set Notation:  $\{y|-1 \leq y \leq 1\}$
    - ii. Interval Notation:  $[-1,1]$
6. The relation is a function
  - a. Domain:
    - i. Set Notation:  $\{x|\mathbb{R}\}$  or  $\{-\infty < x < \infty\}$
    - ii. Interval Notation:  $(-\infty, \infty)$
  - b. Range:
    - i. Set Notation:  $\{y|-\infty < y \leq 2\}$  or  $\{y|y \leq 2\}$
    - ii. Interval Notation:  $(-\infty, 2]$
7. The relation is not a function
  - a. Domain:
    - i. Set Notation:  $\{x|-\infty < x \leq 2\}$  or  $\{x|x \leq 2\}$
    - ii. Interval Notation:  $(-\infty, 2]$
  - b. Range:
    - i. Set Notation:  $\{x|\mathbb{R}\}$  or  $\{-\infty < x < \infty\}$
    - ii. Interval Notation:  $(-\infty, \infty)$

Answers to Set 5:

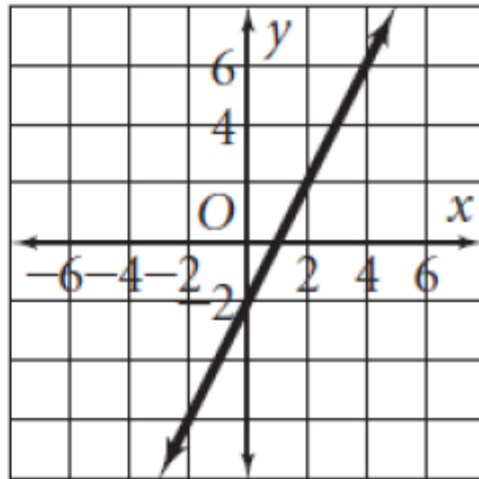
1.  $y = 2x - 4$
2.  $y = 2x + 2$
3.  $y = x + 3$
4.  $y = -2x + 3$
5.  $y = -\frac{1}{2}x + 3$

Answers to Set 6:

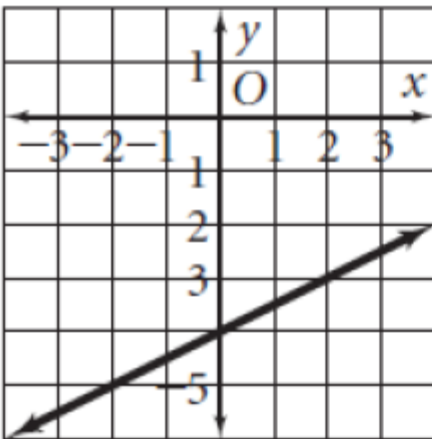
1.



2.



3.



4.

