

Grade 8 Mathematics

Functions

8.F.1

1. If the relation contains the points (3, 5), (6, 7), (3, 9), (5, 9), is it a function?
 - A. Yes, it is a function because the values are all positive.
 - B. Yes, it is a function because the relation passes the vertical line test.
 - C. No, it is not a function because two of the x values are the same but the y values are different.
 - D. No, it is not a function because two of the y values are the same but the x values are different.

8.F.1

2. Sort the following relations into the categories.

(-2, 5), (5, 8), (6, 9), (3, -10)

(5, 12), (6, 8), (4, 6), (8, 11)

(7, 2), (5, -4), (7, 6), (-8, 2)

(-4, -3), (-2, 2), (5, 2), (1, 4)

Function	Not a Function

8.F.2

3. Select from the drop-down menu to complete the statement comparing the two functions.

Function A: $y = \frac{3}{5}x + 2$

Function B: $y = \frac{8}{5}x - 4$

The rate of change for Function A is

Choose	▼
equal to	
greater than	
less than	

the rate of change for Function B.

8.F.2

4. Select from the drop-down menu to complete the statement comparing the two functions.

Function A	
x	y
3	11
2	9
-1	3
5	15

Function B	
x	y
6	11
-4	5
2	8
0	7

The rate of change for Function A is

Choose

the rate of change for Function B.

equal to

greater than

less than

8.F.3

5. Sort the equations into the categories.

$$x = y^2 + 3y$$

$$(x-5)^2 + (y+3)^2 = 64$$

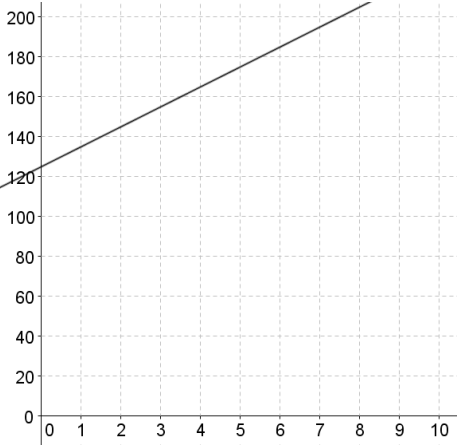
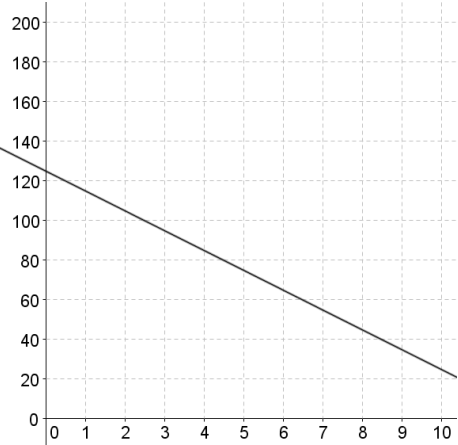
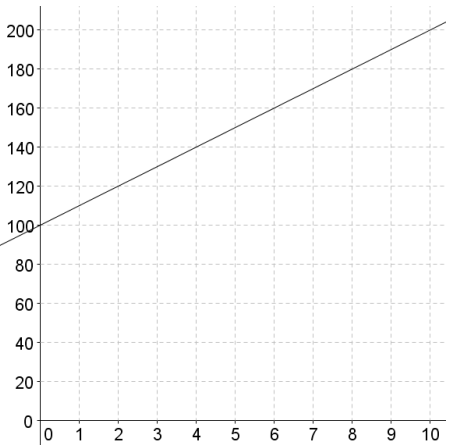
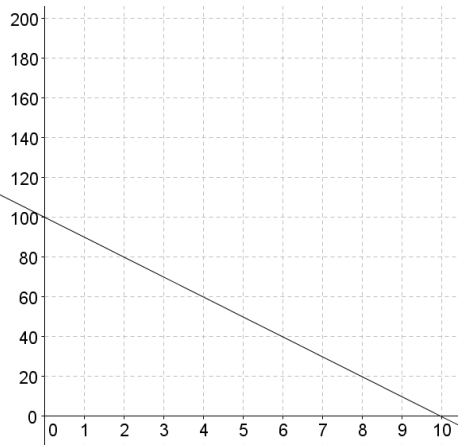
$$3y + 2x = -54 - 5x$$

$$x = |5y|$$

Linear	Non-Linear

8.F.5

6. Greg wants to take his new Labrador retriever to dog training classes. Pauline's Pet House offers training for \$10 a class but they must pay \$125.00 for materials. Which of the following graphs best shows the relationship between classes and the total cost?

<p style="text-align: center;">○ A.</p> 	<p style="text-align: center;">○ B.</p> 
<p style="text-align: center;">○ C.</p> 	<p style="text-align: center;">○ D.</p> 

8.F.3

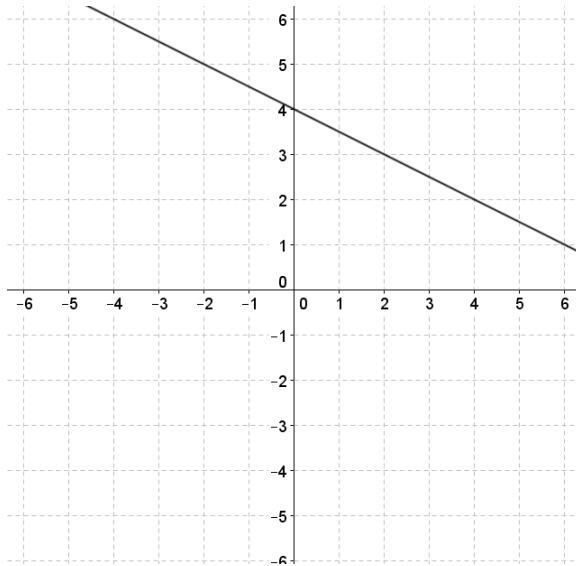
7. Select from the drop-down menu to create a function that represents the linear relationship between the values in the table.

x	y
3	-10
10	-45

$$y = \begin{array}{|c|} \hline \text{Choose} \\ \hline 2 \\ \hline -\frac{1}{2} \\ \hline -5 \\ \hline -\frac{2}{5} \\ \hline \end{array} x + \begin{array}{|c|} \hline \text{Choose} \\ \hline 4 \\ \hline 5 \\ \hline -5 \\ \hline 7 \\ \hline \end{array}$$

8.F.4

8. Use the graph below. Identify the rate of change and the initial value of the function. Write your answer in the boxes.



Rate of change:

Initial Value:

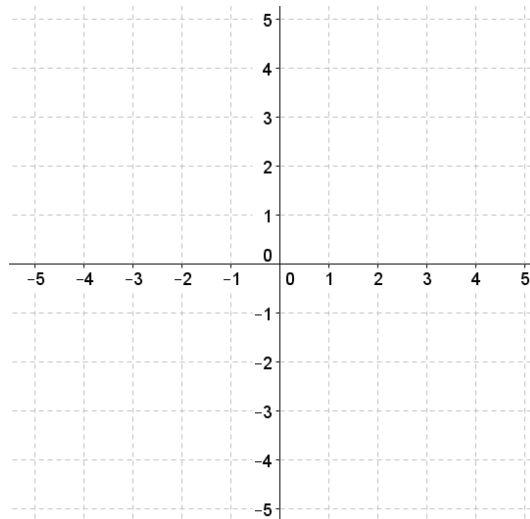
8.F.3

9. Which of the following equations are linear equations? Select **all** that apply.

- A. $-9x + 4 = 3y$
- B. $3y + 2x = -54 - 5x$
- C. $x - 3x^2 + 7y = 35$
- D. $24y = 31x - 58x + 23$
- E. $-3x^2 - 3y^2 = 32$

8.F.5

10. On the grid, draw a graph with an initial value of 0 where the x -values increase half as quickly as the y -values.



ANSWER KEY



8.F.1

1.

- Yes, it is a function because the values are all positive.
- Yes, it is a function because the relation passes the vertical line test.
- No, it is not a function because two of the x values are the same but the y values are different.
- No, it is not a function because two of the y values are the same but the x values are different.

8.F.1

2.

Function	Not a Function
$(-2, 5), (5, 8), (6, 9), (3, -10)$	$(7, 2), (5, -4), (7, 6), (-8, 2)$
$(5, 12), (6, 8), (4, 6), (8, 11)$	
$(-4, -3), (-2, 2), (5, 2), (1, 4)$	

8.F.2

3.

The rate of change for Function A is

Choose	<input type="button" value="v"/>
equal to	
greater than	
less than	

the rate of change for Function B.

8.F.2

4.

The rate of change for Function A is

Choose	<input type="button" value="v"/>
equal to	
greater than	
less than	

the rate of change for Function B.

8.F.3
5.

Linear	Non-Linear
$3y + 2x = -54 - 5x$	$x = y^2 + 3y$
	$(x-5)^2 + (y+3)^2 = 64$
	$x = 5y $

8.F.5
6. A

8.F.3
7.

Choose	<input type="button" value="v"/>	Choose	<input type="button" value="v"/>
2		4	
$-\frac{1}{2}$		5	
$-\frac{2}{2}$		-5	
-5		7	
$-\frac{2}{5}$			

8.F.4

8. rate of change = $-\frac{1}{2}$; initial value = 4

8.F.3

9. $-9x + 4 = 3y$
- $3y + 2x = -54 - 5x$
- $x - 3x^2 + 7y = 35$
- $24y = 31x - 58x + 23$
- $-3x^2 - 3y^2 = 32$

8.F.5
10.

