

**Module 10 Review****Numeric Response**

1. Find the value of  $a$  such that the points  $(4, a)$  and  $(8, 3a)$  lie on a line with slope  $m = \frac{1}{3}$ .
2. Mai and Juan bike up a hill. Each has a different pace. The run for Mai's pace is 28 inches, and the rise is 7 inches. The run for Juan's pace is 16 inches. What is the rise of Juan's pace? If necessary, round your answer to the nearest tenth of an inch.

**Matching**

*Match each vocabulary term with its definition.*

- |                          |                   |
|--------------------------|-------------------|
| a. rise                  | d. slope          |
| b. run                   | e. parallel lines |
| c. constant of variation | f. rate of change |

- \_\_\_\_\_ 1. the difference in the  $y$ -values of two points on a line
- \_\_\_\_\_ 2. the difference in the  $x$ -values of two points on a line
- \_\_\_\_\_ 3. a ratio that compares the amount of change in the dependent variable to the amount of change in the independent variable
- \_\_\_\_\_ 4. a measure of the steepness of a line

*Match each vocabulary term with its definition.*

- |                    |                    |
|--------------------|--------------------|
| a. linear function | d. $y$ -intercept  |
| b. $x$ -axis       | e. $y$ -axis       |
| c. $x$ -intercept  | f. linear equation |

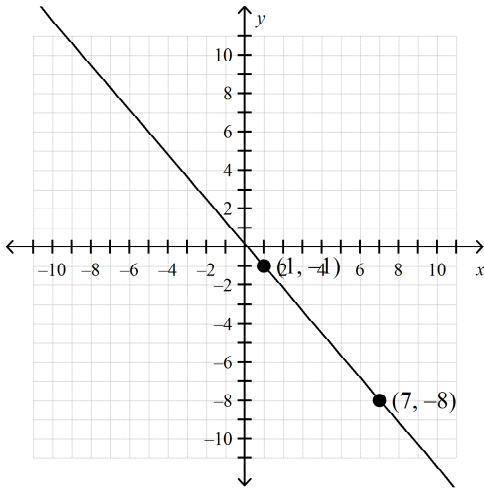
- \_\_\_\_\_ 5. the  $y$ -coordinate of the point where a graph intersects the  $y$ -axis
- \_\_\_\_\_ 6. an equation that can be written in the form of  $Ax + By = C$ , where  $A$ ,  $B$ , and  $C$  are real numbers, and  $A$  and  $B$  are not both zero
- \_\_\_\_\_ 7. the  $x$ -coordinate of the point where a graph intersects the  $x$ -axis
- \_\_\_\_\_ 8. a function whose graph forms a straight line

**Multiple Choice**

*Identify the choice that best completes the statement or answers the question.*

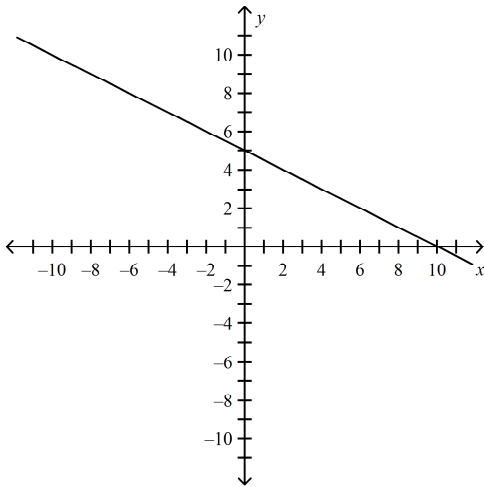
- \_\_\_\_\_ 1. Tell whether the set of ordered pairs  $\{(1, 1), (3, 5), (5, 9), (7, 13)\}$  satisfies a linear function. Explain.
- a. No; there is no constant change in  $x$  that corresponds to a constant change in  $y$ .
  - b. Yes; there is no constant change in  $x$  that corresponds to a constant change in  $y$ .
  - c. Yes; there is a constant change in  $x$  that corresponds to a constant change in  $y$ .
  - d. No; there is a constant change in  $x$  that corresponds to a constant change in  $y$ .

\_\_\_\_\_ 2. The graph shows a linear relationship. Find the slope.



- a.  $-\frac{9}{8}$
- b.  $-\frac{6}{7}$
- c.  $-\frac{8}{9}$
- d.  $-\frac{7}{6}$

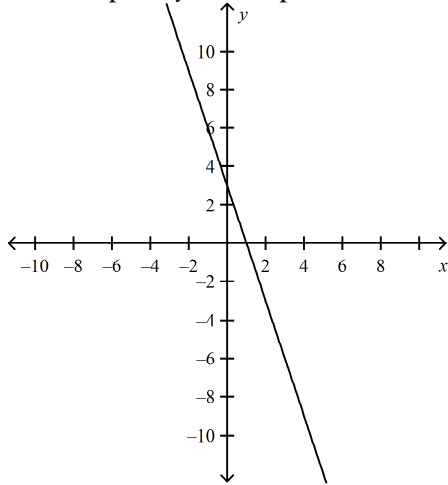
\_\_\_\_\_ 3. Find the  $x$ - and  $y$ -intercepts.



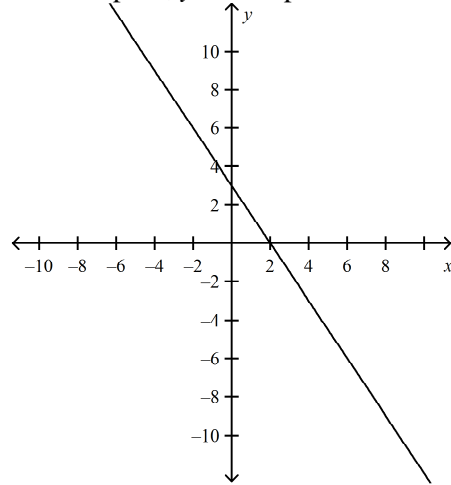
- a.  $x$ -intercept: 10,  $y$ -intercept: -5
- b.  $x$ -intercept: 5,  $y$ -intercept: 10
- c.  $x$ -intercept: 10,  $y$ -intercept: 5
- d.  $x$ -intercept: -10,  $y$ -intercept: 5

4. Use intercepts to graph the line described by the equation  $3x + 2y = 6$ .

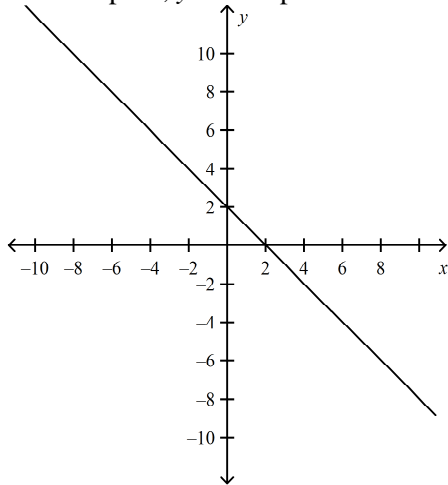
a.  $x$ -intercept: 1,  $y$ -intercept: 3



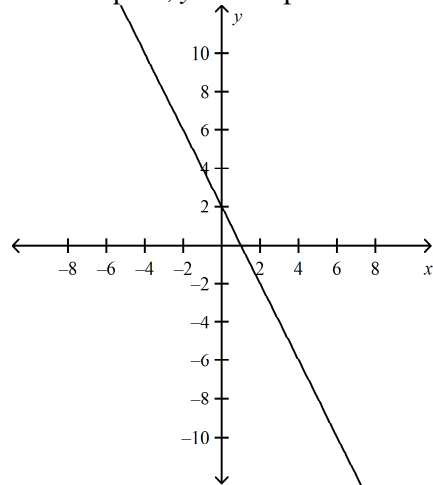
c.  $x$ -intercept: 2,  $y$ -intercept: 3



b.  $x$ -intercept: 2,  $y$ -intercept: 2

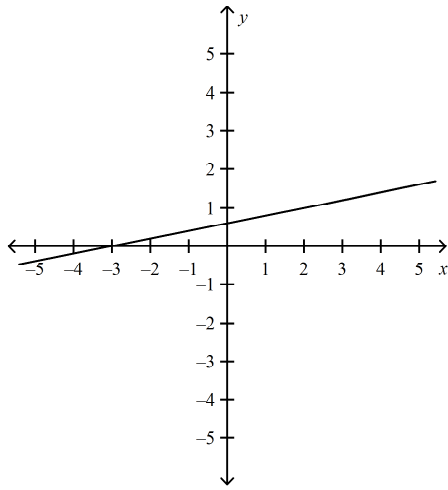


d.  $x$ -intercept: 1,  $y$ -intercept: 2



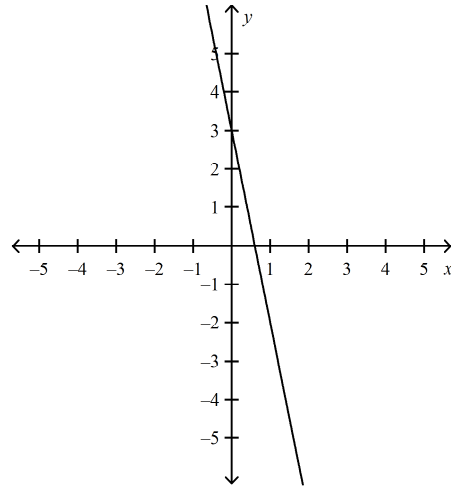
5. Tell whether the function  $y = 5x - 3$  is linear. If so, graph the function.

a.

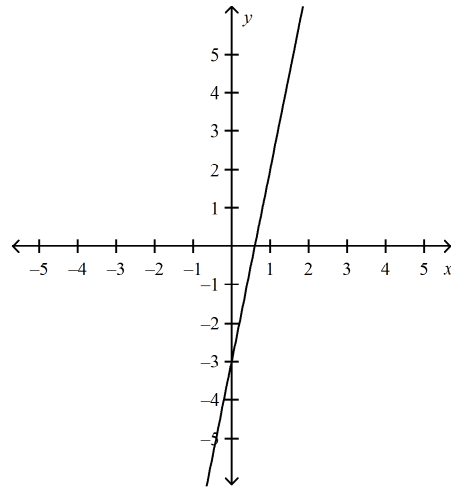


b. Not a linear function.

c.



d.



## Module 10 Review Answer Section

### NUMERIC RESPONSE

1. ANS:  $\frac{2}{3}$

PTS: 1                    DIF: 3                    REF: 10fcc00a-4683-11df-9c7d-001185f0d2ea  
 STA: MCC9-12.F.IF.6 | MCC9-12.S.ID.7                    LOC: MTH.C.10.07.02.01.01.005  
 TOP: 10-4 The Slope Formula                    KEY: slope | point | function  
 DOK: DOK 3

2. ANS: 4

PTS: 1                    DIF: 2                    REF: 10fc98fa-4683-11df-9c7d-001185f0d2ea  
 STA: MCC9-12.F.IF.6                    TOP: 10-3 Rate of Change and Slope  
 KEY: slope | ratio | rise | run                    DOK: DOK 2

### MATCHING

1. ANS: A                    PTS: 1                    DIF: 1  
 REF: 110d497e-4683-11df-9c7d-001185f0d2ea                    TOP: 10-3 Rate of Change and Slope  
 DOK: DOK 1
2. ANS: B                    PTS: 1                    DIF: 1  
 REF: 111497a2-4683-11df-9c7d-001185f0d2ea                    TOP: 10-3 Rate of Change and Slope  
 DOK: DOK 1
3. ANS: F                    PTS: 1                    DIF: 1  
 REF: 1106497a-4683-11df-9c7d-001185f0d2ea                    TOP: 10-3 Rate of Change and Slope  
 DOK: DOK 1
4. ANS: D                    PTS: 1                    DIF: 1  
 REF: 110884c6-4683-11df-9c7d-001185f0d2ea                    TOP: 10-3 Rate of Change and Slope  
 DOK: DOK 1
5. ANS: D                    PTS: 1                    DIF: 1  
 REF: 1106226a-4683-11df-9c7d-001185f0d2ea                    TOP: 10-2 Using Intercepts  
 DOK: DOK 1
6. ANS: F                    PTS: 1                    DIF: 1  
 REF: 110ae722-4683-11df-9c7d-001185f0d2ea                    TOP: 10-1 Identifying Linear Functions  
 DOK: DOK 1
7. ANS: C                    PTS: 1                    DIF: 1  
 REF: 1103c00e-4683-11df-9c7d-001185f0d2ea                    TOP: 10-2 Using Intercepts  
 DOK: DOK 1
8. ANS: A                    PTS: 1                    DIF: 1  
 REF: 110b0e32-4683-11df-9c7d-001185f0d2ea                    TOP: 10-1 Identifying Linear Functions  
 DOK: DOK 1

## MULTIPLE CHOICE

1. ANS: C

In a linear function, a constant change in  $x$  means a constant change in  $y$ .

	$x$	$y$	
	1	1	
+ 2	3	5	+ 4
+ 2	5	9	+ 4
+ 2	7	13	+ 4

constant change in  $y$

	Feedback
<b>A</b>	This is a linear function if a constant change in $x$ corresponds to a constant change in $y$ .
<b>B</b>	If a constant change in $x$ corresponds to a constant change in $y$ , then the function is linear.
<b>C</b>	Correct!
<b>D</b>	Check to see if there is a constant change in the $x$ -values and the $y$ -values.

PTS: 1      DIF: 1      REF: 10ab88c2-4683-11df-9c7d-001185f0d2ea

OBJ: 10-1.2 Identifying a Linear Function by Using Ordered Pairs

STA: MCC9-12.F.LE.1b

LOC: MTH.C.10.07.02.03.002

TOP: 10-1 Identifying Linear Functions      KEY: function | linear

DOK: DOK 2

2. ANS: D

$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad \text{Use the slope formula.}$$

$$m = \frac{(-8) - (-1)}{(7) - (1)} \quad \text{Substitute } (1, -1) \text{ for } (x_1, y_1) \text{ and } (7, -8) \text{ for } (x_2, y_2).$$

$$m = \frac{-7}{6} = -\frac{7}{6} \quad \text{Simplify.}$$

	Feedback
<b>A</b>	First, substitute the coordinates of the first point into $(x_1, x_2)$ and the coordinates of the second point into $(y_1, y_2)$ of the slope formula. Then, simplify.
<b>B</b>	Use the slope formula.
<b>C</b>	Divide the difference in $y$ -values by the difference in $x$ -values.
<b>D</b>	Correct!

PTS: 1      DIF: 1      REF: 10c1250e-4683-11df-9c7d-001185f0d2ea

OBJ: 10-4.2 Finding Slope from Graphs and Tables

STA: MCC9-12.F.IF.6

LOC: MTH.C.10.07.02.01.01.004

TOP: 10-4 The Slope Formula

KEY: slope formula | linear | graph

DOK: DOK 2

3. ANS: C

The graph intersects the  $x$ -axis at  $(10, 0)$ . The  $x$ -intercept is 10.

The graph intersects the  $y$ -axis at  $(0, 5)$ . The  $y$ -intercept is 5.

	Feedback
A	Check the $y$ -intercept. If the $y$ -intercept is below the origin, it is negative.
B	The $x$ -axis is the horizontal (left-right) axis; the $y$ -axis is the vertical (up-down) axis.
C	Correct!
D	Check the $x$ -intercept. If the $x$ -intercept is to the left of the origin, it is negative.

PTS: 1

DIF: 1

REF: 10b0748a-4683-11df-9c7d-001185f0d2ea

OBJ: 10-2.1 Finding Intercepts

STA: MCC9-12.F.IF.4

TOP: 10-2 Using Intercepts

KEY: linear equation |  $x$ -intercept |  $y$ -intercept | intercept

DOK: DOK 2

4. ANS: C

To find the  $x$ -intercept, let  $y = 0$  and solve for  $x$ ; to find the  $y$ -intercept, let  $x = 0$  and solve for  $y$ .

Then, plot the intercepts and draw a line connecting them.

	Feedback
A	Check that you solved for the $x$ -intercept correctly.
B	Check that you solved for the $y$ -intercept correctly.
C	Correct!
D	To find the $x$ -intercept, replace $y$ with 0 and solve for $x$ . To find the $y$ -intercept, replace $x$ with 0 and solve for $y$ .

PTS: 1

DIF: 2

REF: 10b53942-4683-11df-9c7d-001185f0d2ea

OBJ: 10-2.3 Graphing Linear Equations by Using Intercepts NAT: NT.CCSS.MTH.10.9-12.F.IF.7.a

STA: MCC9-12.F.IF.7a

LOC: MTH.C.10.07.02.03.008

TOP: 10-2 Using Intercepts

KEY: linear equation | graphing |  $x$ -intercept |  $y$ -intercept | intercept

DOK: DOK 2

5. ANS: D

$$y = 5x - 3$$

Write the equation in standard form. Try to get both variables on the same side.

$$y - 5x = 5x - 3 - 5x$$

Subtract  $5x$  from both sides.

$$y - 5x = -3$$

$y - 5x = -3$  is equivalent to  $-5x + y = -3$ .

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

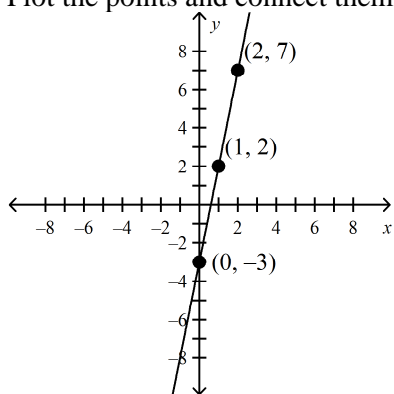
The equation is in the form  $Ax + By = C$  ( $A = -5$ ,  $B = 1$ ,  $C = -3$ ).

The equation can be written in standard form, so the function is linear.

To graph the function, choose three values of  $x$  and use them to generate ordered pairs.

$x$	$y = 5x - 3$	$(x, y)$
0	$y = 5(0) - 3 = -3$	$(0, -3)$
1	$y = 5(1) - 3 = 2$	$(1, 2)$
2	$y = 5(2) - 3 = 7$	$(2, 7)$

Plot the points and connect them with a straight line.



PTS: 1

DIF: 2

REF: 10abafd2-4683-11df-9c7d-001185f0d2ea

OBJ: 10-1.3 Graphing Linear Functions STA: MCC9-12.F.IF.7a

LOC: MTH.C.10.07.02.03.002 | MTH.C.10.07.02.03.008

TOP: 10-1 Identifying Linear Functions

KEY: function | linear | identify

DOK: DOK 2



Module 10 Review [Answer Strip]

ID: A

  D   2.

  C   4.

  D   5.

  A   1.

  B   2.

  F   3.

  C   3.

  D   4.

  D   5.

  F   6.

  C   7.

  A   8.

  C   1.