Name _____ Date _____ Class _____

linear function:
graph is a straight line
nonlinear function:
graph is NOT a straight line

Is the rate of change, $\dfrac{\text{change in } f(x)}{\text{change in } x}$ constant? Does each data set represent a linear or nonlinear function?
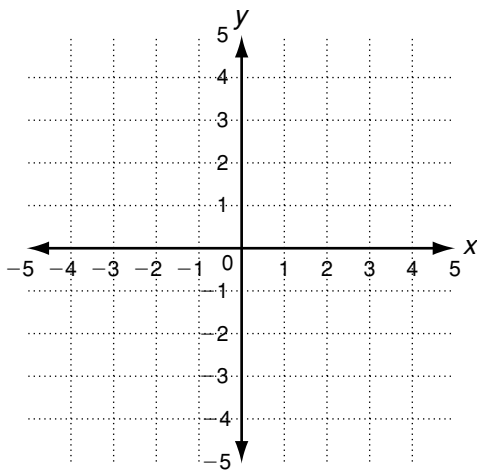
1.

+2 _____ _____

x	1	3	5	7
f(x)	5	10	15	20

+5 _____ _____

_____

2.

_____ _____ _____

x	0	3	6	9
f(x)	1	3	7	10

_____ _____ _____

_____

Plot the given point. Use the slope to find a second point. Then graph the line.

3. point: $(0, -3)$; slope: 2

slope:
steepness of line
x-intercept :
x value where line crosses x-axis
y-intercept :
y value where line crosses y-axis

What is the x-intercept and the y-intercept for each line? The first one is started for you.

4. $4x + y = 8$

$y = 0; x = \underline{\quad\quad 2 \quad\quad}$

$x = 0; y = \underline{\quad\quad\quad\quad}$

5. $3x + 2y = -6$

$y = 0; x = \underline{\quad\quad\quad\quad}$

$x = 0; y = \underline{\quad\quad\quad\quad}$

Write each function in slope-intercept form, $y = mx + b$.

6. $-5x + y = 7$

$-5x + y + 5x = 7 + 5x$

$y = \underline{\quad\quad\quad\quad\quad\quad}$

7. $2y = 4x - 12$

$\underline{\quad\quad\quad\quad\quad\quad}$

$\underline{\quad\quad\quad\quad\quad\quad}$

Holt Algebra 2

LESSON 2-3

Practice A

Graphing Linear Functions

Is the rate of change, $\dfrac{\text{change in } f(x)}{\text{change in } x}$ constant? Does each data set represent a linear or nonlinear function?

> **linear function:**
> graph is a straight line
>
> **nonlinear function:**
> graph is NOT a straight line

1.

  +2 **+2** **+2**

x	1	3	5	7
f(x)	5	10	15	20

  +5 **+5** **+5**

linear

2.

  +3 **+3** **+3**

x	0	3	6	9
f(x)	1	3	7	10

  +2 **+4** **+3**

nonlinear

Plot the given point. Use the slope to find a second point. Then graph the line.

3. point: $(0, -3)$; slope: 2
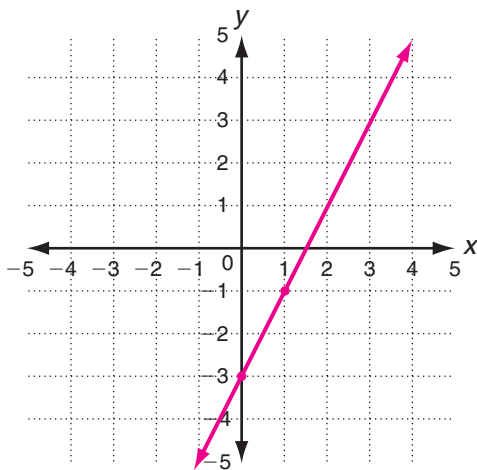
> **slope:**
> steepness of line
>
> **x-intercept :**
> x value where line crosses x-axis
>
> **y-intercept :**
> y value where line crosses y-axis

What is the x-intercept and the y-intercept for each line? The first one is started for you.

4. $4x + y = 8$

$y = 0; x =$ _____**2**_____

$x = 0; y =$ _____**8**_____

5. $3x + 2y = -6$

$y = 0; x =$ _____**−2**_____

$x = 0; y =$ _____**−3**_____

Write each function in slope-intercept form, $y = mx + b$.

6. $-5x + y = 7$

$-5x + y + 5x = 7 + 5x$

$y =$ _____**5x + 7**_____

7. $2y = 4x - 12$

_____

_____**y = 2x − 6**_____

Holt Algebra 2