

# Checkpoint

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Linear Equations- Checkpoint

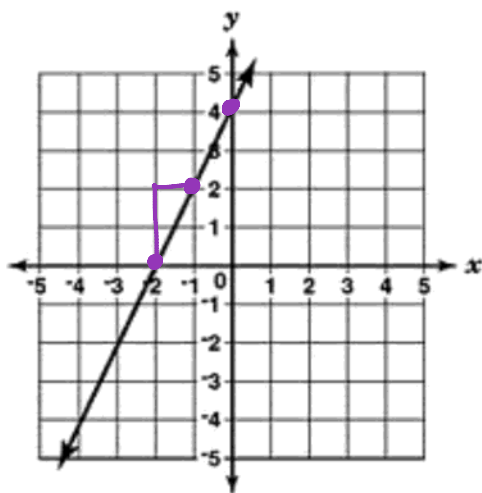
Name \_\_\_\_\_

Day \_\_\_ Period \_\_\_

Beginning	Developing	Accomplished	Exemplary
Does not demonstrate a basic understanding of concept. Substantial errors throughout.	Basic understanding of concepts. Errors and inconsistency reveal some missing understanding of concept. Difficulty with harder questions.	Solid understanding of concepts. Most answers are correct with only a few minor errors.	Complete and in depth understanding of concept. Answers are correct.

**Concept #1: Create a linear equation from a graph.**

Write an equation given the graph of a line in slope-intercept form ( $y=mx+b$ )



$y=mx+b$   
 1)  $m = \frac{2}{1} = 2$   
 2)  $b = 4$

$y = 2x + 4$

Beginning	Developing	Accomplished	Exemplary
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Map for improvement:

**Concept #2: Create a linear equation given two points.**

Write an equation for the line that passes through the points  $(-4, 7)$  and  $(5, -2)$ . Write the equation in slope-intercept form ( $y=mx+b$ )

$y=mx+b$   
 $-2 = -1(5) + b$   
 $-2 = -5 + b$   
 $+5 \quad +5$   
 $3 = b$   
 $1) m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-2 - 7}{5 - (-4)} = \frac{-9}{9} = -1$   
 $2) b = ? \rightarrow \text{plug in } (5, -2)$   
 $b = 3$   
 $y = -1x + 3$

Beginning	Developing	Accomplished	Exemplary
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Map for improvement:

eg. Finding b

Concept #3: Converting between different forms of an equation ( & finding intercepts)

A) Rewrite the equation in general form.

$$\left(y = \frac{1}{3}x - 4\right) \times 3 \quad Ax + By + C = 0$$

$$\cancel{3}y = 1x - 12$$

$$\cancel{-3}y \quad \cancel{-3}y$$

$$\boxed{0 = 1x - 3y - 12}$$

B) Rewrite the equation in slope-intercept form.

$$4x + 3y - 24 = 0 \quad y = mx + b$$

$$\cancel{-3}y \quad \cancel{-3}y$$

$$\frac{4x}{-3} - \frac{24}{-3} = \frac{-3y}{-3}$$

$$-\frac{4}{3}x + 8 = y \rightarrow \boxed{y = -\frac{4}{3}x + 8}$$

C) What is the x-intercept and the y-intercept for part B ( $4x + 3y - 24 = 0$ )?

$$= 8 \quad (\text{plug in } x = 0)$$

x-int: plug in  $y = 0$

$$4x + 3(0) - 24 = 0$$

$$\frac{4x}{4} = \frac{24}{4} \quad \boxed{x = 6}$$

D) Write the equation of a line in slope-point form that passes through the points  $(-3, 4)$  and  $(5, -2)$ .

$$y - y_1 = m(x - x_1) \quad \text{Need 1) } m = \frac{-2 - 4}{5 - (-3)} = \frac{-6}{8} = \frac{-3}{4}$$

$$y - 4 = \frac{-3}{4}(x - (-3))$$

$$\boxed{y - 4 = \frac{-3}{4}(x + 3)}$$

2) point =  $(-3, 4)$   
 $x_1$     $y_1$

Beginning

Developing

Accomplished

Exemplary

Map for improvement

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