4.7 Determining the Equation of a Line & Matching Graphs

Wednesday, February 24, 2016 10:02 AM

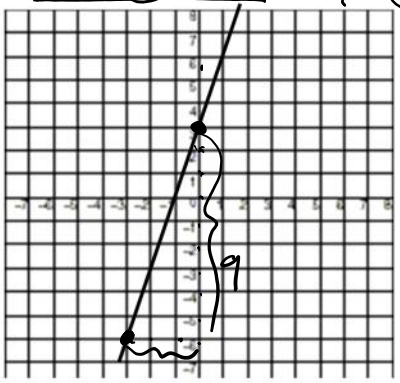
Name_____ _____ Date_____

4.5 Determining the Equation of a Line & Matching Graphs

We are able to match equations with their graphs, using two different methods:

1) To find the match using slope and y-intercept.
2) To pick two points from the line and substitute into the equation.

Example 1: Which of the three equations is the match for the relation graphed? How do you know? y-int = 3 slope = $\frac{3}{1}$ = 3 $y = 3x + 3$ $y = mx + b$



$y = 3 - x$

$y = 3x + 3$

$y = 3x - 3$

$m = \frac{-9}{-3} = 3$

Example 2: Match each question with a line on this grid. Justify your answers.

Re-write the lines in $y = mx + b$

a) $x + y = 5$

$-x \quad -x$

$y = -x + 5$ → line 3

b) $x - y = 5$ $x = y + 5$

$+y \quad +y \quad -5 \quad -5$

$y = x - 5$ line 2

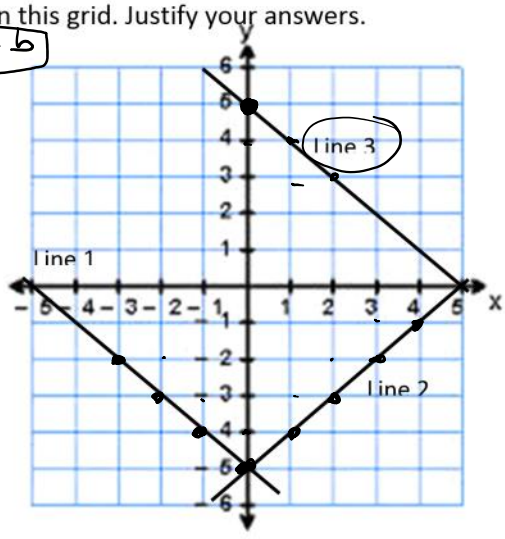
$m = \frac{1}{1}$ →

c) $x + y = -5$

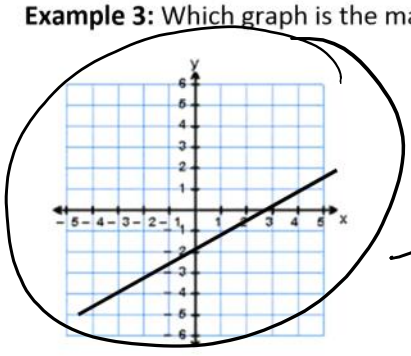
$-x \quad -x$

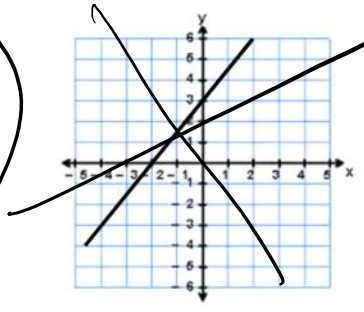
$y = -x - 5$ line 1

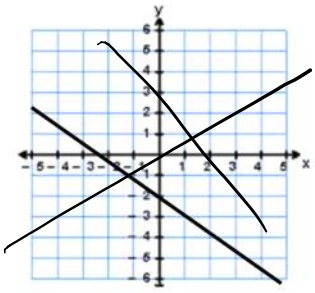
$m = -\frac{1}{1}$



Example 3: Which graph is the match for the equation $2x - 3y = 6$? How do you know?







$2x - 3y = 6$

$-2x \quad -2x$

$2x - 3y = 6$
$-2x \quad -2x$
$\frac{-3y}{-3} = \frac{-2x}{-3} + \frac{6}{-3} \Rightarrow y = \frac{2}{3}x - 2$

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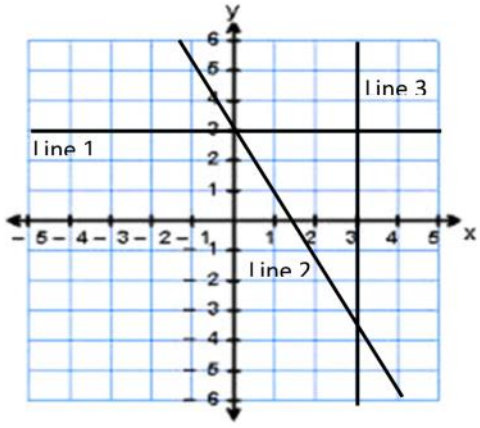
Example 4: Match the following equations with their corresponding lines. Explain your answers.

a) $2x + 7 = 13$

b) $4y = 12$

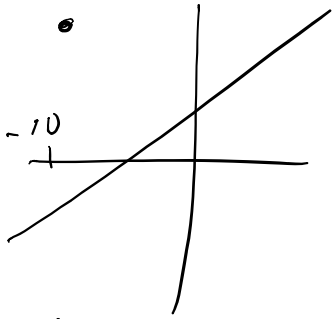
c) $2x + y = 3$



* A point that satisfies the equation will lie on the line.
* A point that lies on the equation will satisfy the equation.

1) For each equation, does the following point satisfy the equation?
   a) $y = 3x - 5$ (2, -1)

   b) $y = 7 - \frac{4}{3}x$ (6, -1)



2) For each linear equation given, does the point lie on the line?
   a) $2x - 5y = 10$ (-10, 6)

$2(-10) - 5(6) = 10$ *y no, the point (-10, 6) does not lie on the line
$-20 - 30 = 10$
$-50 \neq 10$

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   b) $y = \frac{4}{7}x - 8$ (7, 4)

$4 = \frac{4}{7}(7) - 8$
$4 = 4 - 8$ $4 \neq -4$ NO.

   c) $7x = 2y - 20$ (4, 4)

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