Name: _____   Date: _____

MORE WORK GRAPHING LINEAR FUNCTIONS (LINES)
COMMON CORE ALGEBRA I

It is critical that you are able to graph lines and understand graphs of lines. Try the first exercise as a warm up.

Exercise #1: Four lines are graphed on the set of axes below. Write the number of the line beside each of the correct equations.

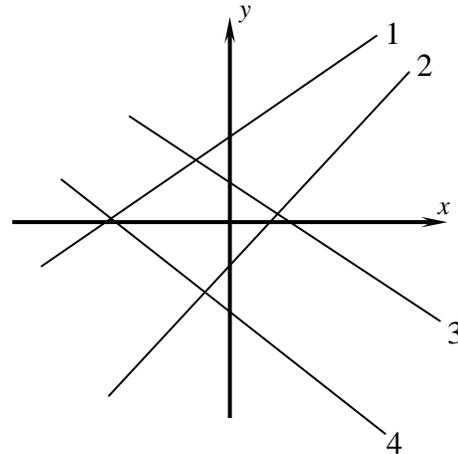**EQUATION**

$y = -\dfrac{2}{3}x + 3$ _____

$y = x + 5$ _____

$y = -2x - 7$ _____
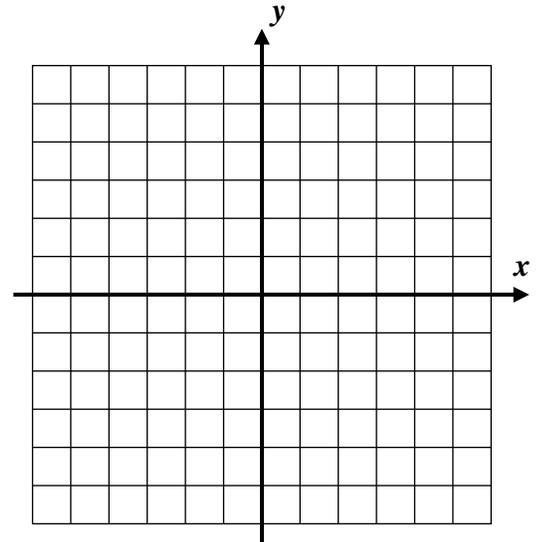
$y = 2x - 3$ _____

Recall that if a line is written in the form $y = mx + b$, then it is relatively easy to graph, especially if *m* and *b* are reasonably easy to work with. A quick review from the previous lesson.

Exercise #2: On the grid below, graph the equation $y = \dfrac{3}{2}x - 3$. First, identify its slope and *y*-intercept to help you with the graph.

Slope: _____

y-intercept: _____

Exercise #3: Write down two points this line passes through and use them to calculate the average rate of change of this function.

Sometimes linear equations are not written in a form that makes it easy to determine the slope and the *y*-intercept. It is important to be able to rearrange these formulas in order to quickly identify these linear parameters.

Exercise #4: Consider the linear equation given by $2y - 6x = 12$.

(a) Steps are shown below that rearrange this equation. Justify each step with a property of equality or a property of numbers.

(1) $2y - 6x + 6x = 12 + 6x$ _____

(2) $2y = 6x + 12$ _____

(3) $\dfrac{2y}{2} = \dfrac{6x + 12}{2}$ _____

(4) $y = \dfrac{6x}{2} + \dfrac{12}{2}$ _____

       $y = 3x + 6$

(b) Identify the slope and the *y*-intercept of this line.

Exercise #5: Rearrange each of the following linear equations into $y = mx + b$ form and identify the slope and the *y*-intercept.

(a) $3y - 3x = 15$ (b) $2y + 5x = -8$

(c) $x - 3y = 6$ (d) $6x - 4y = -20$

Name: _____   Date: _____

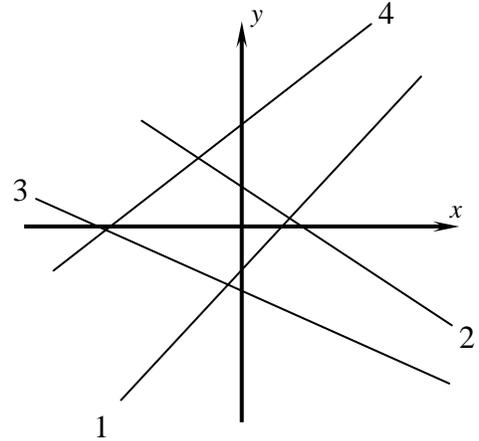# MORE WORK GRAPHING LINEAR FUNCTIONS
COMMON CORE ALGEBRA I HOMEWORK

FLUENCY

1. Four lines are shown graphed. Place the number of the line next to the equation that most appropriately models it.
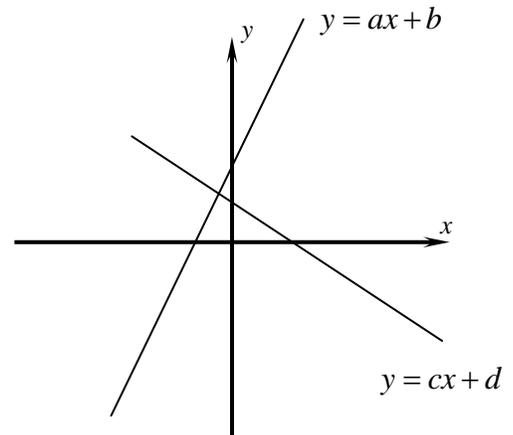
$y = \dfrac{2}{3}x + 5$ _____

$y = x - 3$ _____

$y = -\dfrac{3}{4}x + 3$ _____

$y = -\dfrac{1}{2}x - 4$ _____

2. The two lines $y = ax + b$ and $y = cx + d$ are shown graphed below. The values of $a, b, c,$ and d are not given, but properties of them can be inferred from the graph. Circle the pair of values below that could be equal? Explain.

b and d a and d a and c

Explain:

3. Which of the following is true about the linear function $2y + x = 18$.

   (1) It has a slope of 2 and a *y*-intercept of 18.

   (2) It has a slope of -2 and a *y*-intercept of 9.

   (3) It has a slope of $-\dfrac{1}{2}$ and a *y*-intercept of 9.

   (4) It has a slope of $\dfrac{1}{2}$ and a *y*-intercept of 18.

4. For the line $2y - 6x = 10$, for every unit increase in *x* which of the following is true?

   (1) *y* decreases by 6   (3) *y* increases by 2

   (2) *y* increases by 3   (4) *y* decreases by 10

5. Rewrite each of the following linear equations in equivalent $y = mx + b$ (slope-intercept) form. Identify the slope and the y-intercept and then graph on the grid given. Label each line with its original equation.
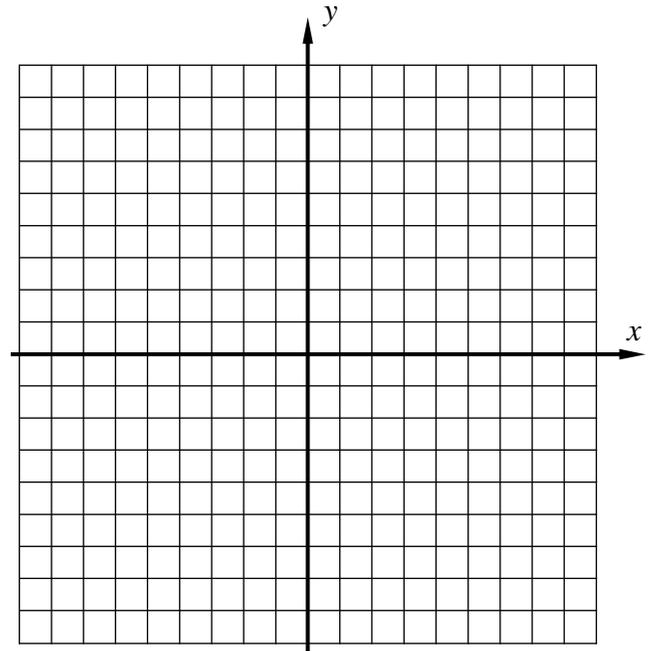
(a) $2y - 3x = 10$

Slope: _____ y-intercept: _____

(b) $x + 2y = 6$

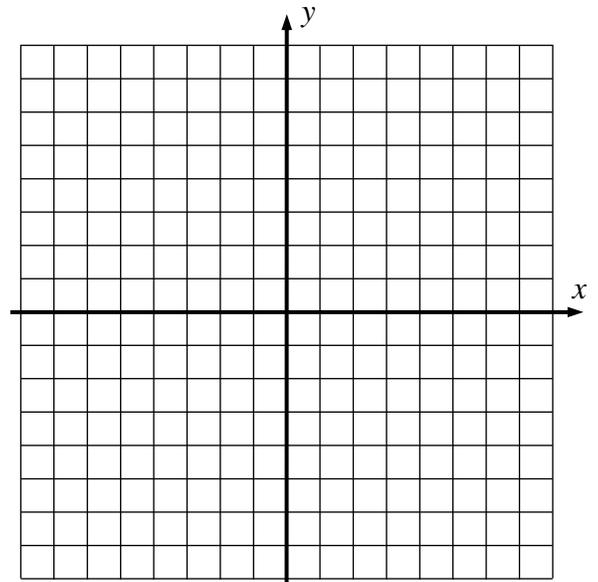Slope: _____ y-intercept: _____

(c) $3y + 12 = 5x$

Slope: _____ y-intercept: _____

6. What are the coordinates of the one point shared in common between the two linear functions given below?

$y = 2x - 2$

$3y + x = 15$

Do you remember what this type of problem is called from 8th grade Common Core Mathematics?