

Name: _____

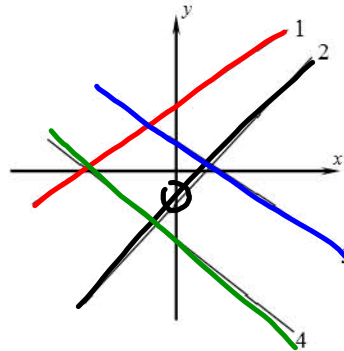
MORE WORK GRAPHING LINEAR FUNCTIONS (LINES)



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

Do Now: Four lines are graphed on the set of axes below. Write the number of the line beside each of the correct equations.

- | | |
|---------------------------|----------|
| EQUATION | |
| ✓ $y = -\frac{2}{3}x + 3$ | <u>3</u> |
| ✓ $y = x + 5$ | <u>1</u> |
| $y = -2x - 7$ | <u>4</u> |
| $y = 2x - 3$ | <u>2</u> |



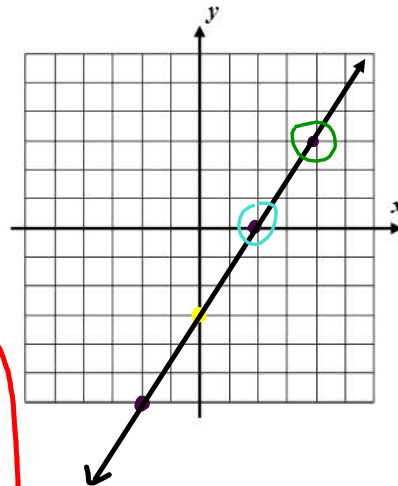
Recall that if a line is written in the form $y = mx + b$, then it is relatively easy to graph, especially if m and b are reasonably easy to work with. A

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

Slope: $\frac{3}{2}$

y-intercept: -3

rise ←
run



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

$$\frac{\Delta y}{\Delta x} = \frac{3 - 0}{4 - 2} = \frac{3}{2}$$

Points: $(2, 0)$ and $(4, 3)$

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

★ (a) $3y - 3x = 15$
 $\quad \quad \quad \underline{+3x} \quad \underline{+3x}$

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

$$\frac{3y}{3} = \frac{3x}{3} + \frac{15}{3}$$

★ $y = x + 5$ ←
 SLOPE
 INTERCEPT
 FORM

(c) $x - 3y = 6$
 $\quad \underline{-x} \quad \underline{-x}$

$$-3y = 6 - x$$

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

$$y = \frac{1}{3}x - 2$$

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

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MORE WORK GRAPHING LINEAR FUNCTIONS – PRACTICE/HW!

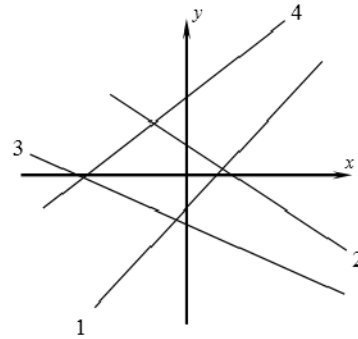
1. Four lines are shown graphed. Place the number of the line next to the equation that most appropriately models it.

$y = \frac{2}{3}x + 5$ _____

$y = x - 3$ _____

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

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



2. 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 $-\frac{1}{2}$ and a y-intercept of 9.
 - (4) It has a slope of $\frac{1}{2}$ and a y-intercept of 18.
3. For the line $2y - 6x = 10$, for every unit increase in x which of the following is true?

- (1) y decreases by 6
- (2) y increases by 3
- (3) y increases by 2
- (4) y decreases by 10

4. 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: _____

