Sections 6.1 and 6.2 Basic of Linear Equations
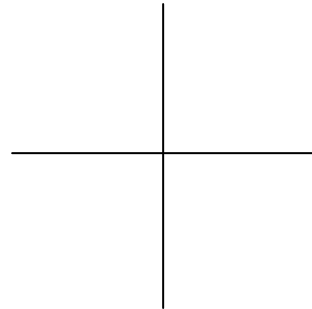
1. Determine and label the intercepts and sketch the graphs of each of the following linear equations.
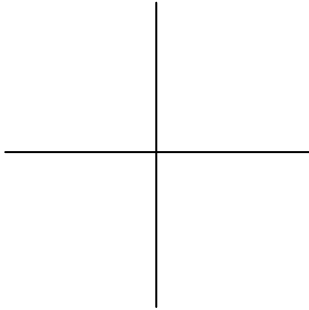
   a) $2x + 3y = 6$ b) $3x - 4y = 12$

2. In each calculate the slope of the line passing through the two given points.

   a) $(2, 5)$ and $(4, 11)$ _____

   b) $(-2, 1)$ and $(3, -8)$ _____

   c) $(1, 4)$ and $(-3, 8)$ _____

3. In each determine an equation of a line in slope-intercept form which
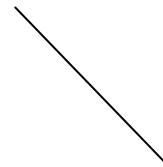
   a) has slope 4 and y-intercept -6.   _____

   b) has slope -2 and y-intercept 5.   _____

   c) has slope 5 and passes through the point $(-1, 3)$.   _____

   d) has slope -3 and passes through the point $(2, 4)$ _____

   e) has slope 2 and passes through the origin.   _____

4. Estimate the slope of each of the following. (Assume the same scale on both axes.)

(a) _____ (b) _____ (c) _____ (d) _____

5. (a) Write an equation for a line in slope-intercept form which passes
through the points $(2, 5)$ and $(4, 11)$.

_____

(b) Is the point $(-1, -4)$ on the line you found in part (a)? Explain.

6. A certain college currently enrolls 4000 students. It plans to increase its
enrollment, x, by 200 students per year during each of the next 15 years.

(a) Write down a linear equation in x and y which describes this phenomena.
Assume x represents the number of years from now.

a)_____

(b) How many students will they have ten years from now?

b)_____

7. Assume at a certain college the yearly tuition, y, is $6000. If it increases by
$400 per year, write a linear equation in x and y which relates the tuition to the
number of years, x, from the present.

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8. Assume a student is required to complete 128 credits to graduate. Furthermore,
this student will complete 16 credits per semester. Write an equation which
relates y, the number of credits still needed to x, the number of semesters
completed.

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