

You MUST use good notation and show appropriate work.

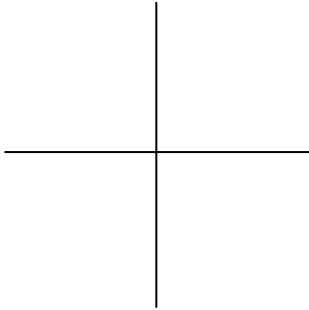
**Math 102**  
(Sections 7.1 and 7.2)

Name \_\_\_\_\_

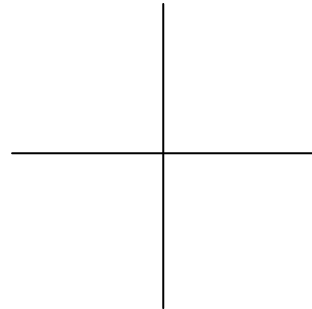
**Sections 7.1 and 7.2 Basic of Linear Equations**

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  $(-1, 3)$ .

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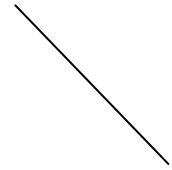
d) has slope  $-3$  and passes through the point  $(2, 4)$

\_\_\_\_\_

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.

\_\_\_\_\_

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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