MAC 1105 Pre-Class Assignment (due 5/13 by 11:59pm):

Cartesian Coordinate System. The diagram that the line is drawn on is called a ***coordinate plane***. It is simply made up of a horizontal line (called the ***x-axis***) and a vertical line (the ***y-axis***). The central point of the diagram is the point where the lines intersect (called the ***origin***). A coordinate plane represents two separate values, an x-value and a y-value.
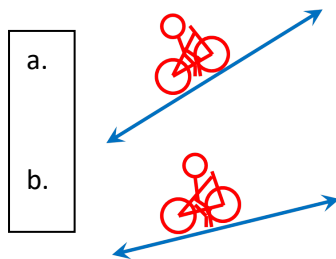
Plotting Points. Every point on a coordinate system can be represented by the notation (x, y) where x represents the horizontal location of the point and y represents the vertical location of the point. Here are the graphs of some various points on the coordinate plane.

    1.   Plot each of the following points on the coordinate system.

M = (1, 4)   N = (4, 1)   O = (0, 0)

P = (-5, 2)   Q = (-2/3, -2)   R = (7.5, 0)

Once you have mastered the concept of coordinates, you are ready to begin drawing lines. The "steepness" of a line is defined by its slope. Slope is most easily measured using a straight line. This is because a straight line is consistently steep along its entire length.

a.

b.

8. Which of the two bicyclists has a steeper slope? Explain your answer without using the word "steep" or "slope".
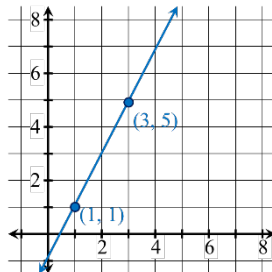
The concept of slope can be thought of as a "slope ratio" of height compared to length or you can think of it as the vertical change in the line compared to the horizontal change in the line.

The "informal" or "conversational definition of slope is "Slope is _____ over _____".

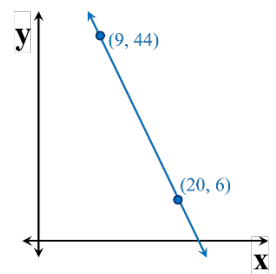   2.   Find the slope of the lines in these two graphs.

a. The slope of the line is (show your work)

Slope =

(3, 5)

(1, 1)

b. The slope of the line is (show your work)
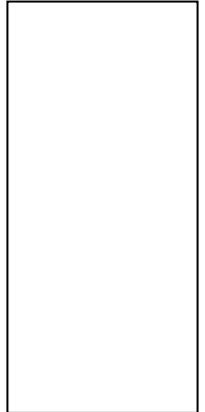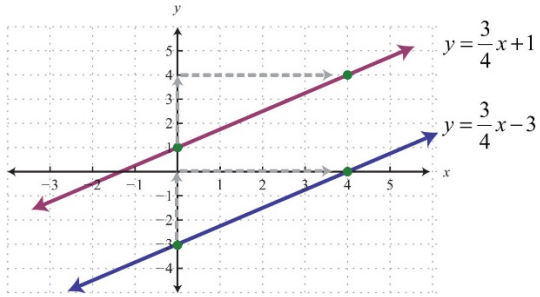
Slope =

(9, 44)

(20, 6)

    3.   There is a formal equation for the slope of a line on a coordinate system. What is it?
    _____

    4.   Use that equation to find the slope of the line that contains the two points.

        a. (-2, -4) and (6, 8)   b. (10, 20) and (20, 10)

$$y = \frac{3}{4}x + 1$$
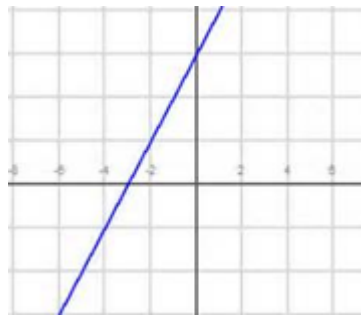
$$y = \frac{3}{4}x - 3$$

Where a line or graph intersects with the x- axis, we call that point a _____. Its coordinate point looks like (,).

12. Where a line or graph intersects with the y- axis, we call that point a _____. Its coordinate point looks like (,).

13. Give the point(s) for the

x-intercept(s):

y-intercept(s):

14. Give the point(s) for the

x-intercept(s):

y-intercept(s):