Concept: Equation of a Straight Line

Name:

PART A: COMPUTER COMPONENT

Instructions: In UMATH X follow the **Content Menu** path:

Graphing > **Equation of a Straight Line**

💻 Work through all Sub Lessons of the following Lessons **in order**:

- *Graph y=mx+b*
- *Slope y-intercept Equations*
- *Exercises: Slope, y- intercept*
- *Parallel & Perpendicular Lines*

NOTE*:* You will not be finishing the entire section before stopping to complete some **OFF COMPUTER EXERCISES**.

Additional Required Materials: Graph Paper

✎ As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal..

When you reach the end of the lesson *Parallel & Perpendicular Lines* on the computer, move on to the **OFF COMPUTER EXERCISES** below.

NOTES

▹The y intercept is the value of the _____ coordinate at the point where is the x coordinate is _____.

▹We can graph a straight line by finding _____point *(the easiest point is found by determining the*_____ *-intercept and then using the* _____ *to sketch the line).*

▹The equation of a straight line can be expressed in the form y = _____x + _____. *Where* _____ *is the slope and* _____ *is the y-intercept.*

▹When 2 lines are parallel, the lines will _____intersect. Their slopes are _____.

▹When 2 lines are perpendicular, the lines meet at_____. Their slopes are _____.

OFF COMPUTER EXERCISES

NOTE: *You will need extra sheets of graph paper for this section.*

1. For each of the 2 lines below, you are given the slope and the y-intercept. For each line, write the equation and graph it on grid paper using the slope and y-intercept. *Then check your graph by finding a third point on the line.*

(a) Slope of $^{-}2$, y-intercept of 5

Equation:

(b) Slope of ½, y-intercept of 0

Equation:

2. Use the slope and the y intercept to graph each of the following lines. *Then use a 3rd point on the line to check your graph.*

(a) $y = \frac{2x}{5} + 3$ (b) $y = \frac{-3x}{2} - 1$

3. A line has an x-intercept of 4 and a y-intercept of 5. *Graph this line.*

Equation:

4. You are given the line. $y = 3x + 2$

(a) The slope is _____.

(b) The y intercept is _____.

(c) *Use the y intercept and the slope to graph this line on grid paper.*

(d) The slope of a line, which is perpendicular to the line above, is _____.

(e) On the grid paper, draw many lines which are perpendicular to $y = 3x + 2$.

(f) Use a red pencil to draw the particular perpendicular line, which has y intercept $^{-}4$. *What is the equation of this red line?*

Equation:

5. Raul packages CDs and is paid according to y = .25x + 4, where y is his earnings and x is the number of CD's packaged.

   (a) Graph this equation.

   (b) Find the slope and interpret its meaning. _____

_____

   (c) Find the y intercept and interpret its meaning. _____

_____