Exam 3 Review

Note: This is not a complete list of topics – you should study your lecture notes and homework in addition to reviewing the items listed here.

1. vocabulary
   a. ordered pair
   b. graph
   c. x-intercept and y-intercept
   d. origin
   e. x-axis and y-axis
   f. rectangular (Cartesian) coordinate system
   g. slope

2. graphing lines using the *intercept method*
   a. Let $x = 0$ and find y. (This is the y-intercept.)
   b. Let $y = 0$ and find x. (This is the x-intercept.)

3. slope of a line: $m = \dfrac{rise}{run} = \dfrac{y_2 - y_1}{x_2 - x_1}$
   a. *grade* of a road = slope (as a %)
   b. *pitch* of a roof = slope of the roof
   c. *rate of change* = slope (i.e. miles/hour)

4. forms of linear equations
   a. *general*: $Ax + By = C$
       used to find the intercepts and sketch a graph.
   b. *slope-intercept*: $y = mx + b$
       used to find the slope and y-intercept and *to graph* the line.
   c. *point-slope*: $y - y_1 = m(x - x_1)$
       used *to find an equation* for the line.
   d. *vertical line*: $x = c$
       m is undefined for vertical lines
   e. *horizontal line*: $y = c$
       $m = 0$ for horizontal lines

5. parallel lines have the same slope
   ex $y = 2x + 3$ and $y = 2x - 1$ are parallel
6. the slopes of perpendicular lines are negative reciprocals
   ex $y = \frac{2}{3}x - 1$ and $y = -\frac{3}{2}x + 5$ are perpendicular.