## 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. 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.)
- 2. slope of a line:  $m = \frac{rise}{run} = \frac{y_2 y_1}{x_2 x_1}$
- 3. forms of linear equations
  - a. general: Ax + By = C
  - b. *slope-intercept*: y = mx + b

The general and slope-intercept forms are used generally to graph the line.

c. *point-slope*:  $y - y_1 = m(x - x_1)$ 

The point-slope form is generally 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
- 4. parallel lines have the same slope
- 5. the slopes of perpendicular lines are negative reciprocals
- 6. solving systems of linear equations
  - a. graphical method
    - i. Graph the two lines and look for their intersection.
    - ii. Always be very careful and as accurate as possible with your graphs.
    - iii. Check your 'guess' in both original equations.
  - b. addition/elimination method
    - i. Decide which variable to eliminate.
    - ii. Multiply one or both equations by appropriate constants so that the variable has opposite coefficients.
    - iii. Add the two resulting equations.
    - iv. Solve the equation in one variable from step iii.
    - v. Substitute the value of the variable into one of the original equations and solve for the other variable.
    - vi. Check your solution in both original equations.
  - c. substitution method
    - i. Use one of the equations to solve for one of the variables.
    - ii. Substitute the expression from step i into the *other* equation.
    - iii. Solve the resulting equation.
    - iv. Substitute the value of the variable into one of the original equations and solve for the other variable.
    - v. Check your solution in both original equations.