Test #3 Concepts Ch. 3,§4.1-4.2 & §5.3-5.5

Systems of Equations (Ch. 3)

- Methods of Solving
  - Graphing (§3.1)
  - Substitution (§3.1)
  - Elimination/Addition (§3.1)
  - System of 3x3 or larger (§3.3)
  - Triangulation/Gaussian Elimination/Using Matrices (§3.4)
  - Cramer's Rule (§3.5)
- Three Types of 2x2 Systems & Their Solutions
  - Consistent/Independent
    - ✓ Ordered Pair Solution
  - Consistent/Dependent
    - ✓ Infinite Solutions (Same Lines)
  - Inconsistent/Independent
    - ✓ No Solution (Parallel Lines)

Linear Inequalities in 1 Variable (Ch. 4.1-4.3)

- Solve as Linear Equation in 1 Variable except with mult/divide by negative
  - Multiply or Divide by a Negative & Reverse the Inequality
  - Simple Linear Inequality is Just Like Equation but keep inequality & remember above
  - Compound you are solving 2 equations simultaneously
    - ✓ Variable stays in the middle!! Work from middle to outsides!
  - Can have all real as solution & no solution
- Graph inequalities on number line
  - Less Than or Greater Than ➔ Parentheses on the endpoint
  - Greater (Less) Than or Equal To ➔ Bracket on the endpoint
- Interval Notation is a "SNAPSHOT" of the number line
  - Left endpoint comma right endpoint with information about inclusion using brackets & parentheses

Linear Inequalities in 2 Variables (Ch. 4.4)

- Solutions/Graphs (It is all the same)
- Graph inequalities on graph
  - Boundary Lines (Solid/Dotted)
  - 1 Check Pt. based upon inequality of slope-int. form
  - Use 3 ordered pairs to graph line

Word Problems Using Systems (Ch. 3.2&3.3)

- Chemistry
- Simple Interest
- Grocery Store/Value Problems
- Distance Problems
- Modeling Linear Systems

Factoring (§5.3-5.5)

- Combining any of the Methods w/ GCF or Substitution
- Trinomials (§5.4-5.5)
  - Perfect Square Trinomial (5.5)
  - Leading Coefficient 1 (5.4)
  - Leading Coefficient not 1 (5.4)
    - ✓ By Grouping(5.4)
  - By Substitution
    - ✓ To factor higher degree than second
    - ✓ To factor with quadratic form
- Binomials (§5.5)
  - Difference of 2 Perfect Squares $a^2 - b^2 = (\text{root of } 1^{st} + \text{root of } 2^{nd})(\text{root of } 1^{st} - \text{root of } 2^{nd})$
  - Sum of 2 Perfect Squares – Prime
  - Sum & Difference of 2 Cubes $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$ & $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$