Exam 6 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. common factors

ab + ac = a(b + c)

- 2. factoring by grouping ab + ac + db + dc = a(b + c) + d(b + c) = (b + c)(a + d)
- 3. factoring trinomials
 - a. $x^2 + bx + c \implies \text{look for factors of } c \text{ whose sum is } b$
 - b. $ax^2 + bx + c$
 - i. multiply $a \cdot c$
 - ii. look for factors of $a \cdot c$ whose sum is b
 - iii. rewrite bx as two terms with coefficients from the previous step
 - iv. factor by grouping
- 4. special factors
 - a. $a^2 b^2 = (a+b)(a-b)$ b. $a^2 + 2ab + b^2 = (a+b)^2$ c. $a^2 - 2ab + b^2 = (a - b)^2$
 - d. $a^{3}-b^{3} = (a-b)(a^{2}+ab+b^{2})$ e. $a^{3}+b^{3} = (a+b)(a^{2}-ab+b^{2})$
- 5. solving equations by factoring
 - a. the equation must always be equal to zero first
 - b. factor completely
 - c. set each factor equal to zero and solve
 - d. check each solution in the original equation