**Algebra Test Study Notes**

**Test Date –Wednesday, 9 March 2011**

**Factoring**

* Factors
  + Prime numbers have only themselves and one as factors
  + Composite numbers have several prime numbers that multiply to equal themselves
  + Numbers can be factored using a tree
  + Variables can be factored, breaking up the variable by its exponents
* Greatest Common Factor (GCF)
  + GCF is the product of the common prime factors
  + GCF can include variables or numbers
* Factoring using the distributive property
  + Find the GCF for each term in a polynomial
  + Factor the GCF from each term, re-writing the terms inside the parenthesis as the original term divided by the GCF
* Factoring trinomials 1 x2 + bx + c
  + Find all pairs of factors for the last term
  + Find the pair of factors that adds (subtracts if the last term is negative) to the middle term
  + Re-write the trinomial as four terms, splitting the middle term
    - If subtracting to form the middle term, the larger term gets the original sign
  + Factor by grouping
    - Separate the first two terms and the last two terms with a parenthesis
    - Find the GCF of each, and factor with the distributive property
    - Both parenthesis terms should be the same
    - Factor the parenthesis from the remaining terms to form two binomials
  + Check answer by using FOIL
* Factoring trinomials A ax2 + bx + c
  + Steps are the same as for factoring trinomials 1 above except
    - Multiply the first and last terms (“a” and “c”), then find sets of factors
* Special Factors
  + Difference of squares a2 – b2 = (a – b)(a + b)
    - Recognize the pattern to factor
    - Make sure to include the coefficient with the variable
  + Perfect Squares a2 – 2ab + b2 = (a – b)2
    - Recognize the pattern to factor
    - Make sure to include the coefficient with the variable
* Solving with factoring
  + Equations of polynomials are rearranged so they equal zero
  + Polynomials are simplified with factoring
  + Each factor is separately set equal to zero
  + Each factor is solved
  + There is one possible solution for each factor
* Word Problems
  + Convert terms in word problem to polynomial and solve
* Review Problem
  + Graphing inequalities

No notes or CAS calculators are allowed on this test