**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