

# PreCalc II - Chp 3 Review/Ref Sheet

Note Title

2015-09-24

Factoring Polynomial Expressions. (Quadratics)

**Recall:** Polynomial must have variables with non-negative integer powers. Coefficients need not be integers.

Techniques:

Factor

PFS (Product, Factor, Sum)

Rational Coefficients - multiply to remove fractions

Substitution - sub for a pattern

Difference of Squares:  $a^2 - b^2 = (a+b)(a-b)$

Solving Quadratic Equations by Factoring - move all terms to one side. Then factor to solve.

Quadratic equation:  $ax^2 + bx + c = 0$

Cancel coefficient factors to factor easier.

Convert Radicals to Quadratics **but check for extraneous roots.**

Use square roots or Complete The Square.

Use Quadratic Formula:  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Word Problems - always draw a diagram if one is not provided. Look at the question to determine what quantity should be the variable if it has not been done for you.

Know your formulas so that you can create an equation.

**Exclude extraneous roots such as negative lengths, negative time, etc.**

Discriminant:  $b^2 - 4ac$

Nature of Roots:

$b^2 - 4ac > 0$ , there are 2 real roots

$b^2 - 4ac = 0$ , 1 real root of multiplicity 2

$b^2 - 4ac < 0$ , there are no real roots