**Math 20-1 Chapter 4 Quadratic Equations Concept Review**

|  |  |
| --- | --- |
| **Key Ideas** | **Description or Example** |
| Quadratic Expression |  |
| Factoring Quadratic Expressions |  |
| Quadratic Equation | **Description:** an equation in which the degree of the polynomial expression is two. |
| Solve by Graphing  Graph the related quadratic function and determine the *x*-intercepts of the graph.  When using graphing technology, navigate to the menu containing zeros (where the height of the graph of the function is zero). | Solve .  Graph the corresponding function    The *x*-intercepts occur at (2, 0) and (3, 0), so *x* = 2 or  *x* = 3. Verify in original equation.    or |
| The **Roots** of a quadratic equation are the solutions to the quadratic equation.  The roots of the equation are related to the **zeros** of the related quadratic function.  The roots of the equation are related to the ***x*-intercepts** of the graph of the related quadratic function. | Roots of equation  Zeros of the function  *x*-intercepts of graph |
| Zero Product Property:  If the factors of a quadratic equation have a product of zero, then one or both of the factors must be equal to zero. | or  or |
| Solve by Factoring |  |
|  |  |
| Completing the square to rewrite the quadratic expression in vertex form.  Take the square root of both sides of the equation to solve for the variable.  Remember both the positive and negative root could be solutions. | Description: The process of rewriting a quadratic polynomial from the standard from  , to vertex form, |
| Quadratic formula can be used to determine the roots of an equation of the quadratic are not easily factorable or if the roots are irrational. | Description: you can use this formula to solve a quadratic equation of the form,    Example:  , |
| Use the Discriminant to determine the nature of the roots. | The express under the radical symbol (radicand) in the quadratic formula:  Three cases:  two distinct real roots  one distinct root or two equal real roots  no real roots |
| Problem Solving |  |
|  |  |
| C:\Users\STEPHA~1\AppData\Local\Temp\SNAGHTML70e513.PNG |  |