|  |  |  |
| --- | --- | --- |
| **What you need to know & be able to do**Honors Algebra IUnit 3 Review – Solving Quadratics | **Things to remember** | **Examples**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_ |
| *1. Solve a quadratic function by graphing* | Determine where the graph crosses the x-axis.Solution is written as x = \_\_\_\_\_\_\_. Solutions are called:x-interceptszerosroots | a. Solve by graphing | b. Solve by graphing |
| *2. Determine the equation of a parabola using its zeros.*  | The zeros and factors in the equation have opposite signs.  | a. Create an equation, in factored form, to represent the following graph. Y =  | b. Create an equation, in factored form, to represent the following graph.Y =  |
| *3. Solve equations in factored form.*  | Zero Product Property | a. Solve (x – 7)(x + 3) = 0  | b. Solve: (x – 4)(5x – 7) = 0 |
| *4. Solve equations by factoring when a = 1.*  | Use number diamonds if there is no number in front of x2.  | a. Solve x2 – 9x + 20 = 0 | b. Solve x2 – 6x – 16 = 0 |
| c. x2 – 13x + 47 = 7 | d. x2 – 100 = 0 |
| *5. Solve equations by factoring when a is not 1* | Use the box method when the number diamond works, but there is a number in front of x2.  | a. Solve 5x2 – 16x + 12 = 0 | b. Solve 3x2 – 18x + 15 = 0  |
| c. Solve 3x2 + 2x – 8 = 0 | d. 6x2 – 5x – 11 = -5 |
| *6. Solve equations by factoring GCF* | Use factoring by GCF when you have two terms (a & b) and both contain an x. One of the solutions will always be 0.  | a. x2 – 4x = 0 | b. $12x^{2}=-36x$ |
| *7. Solve equations by finding square roots.*  | Use solving by square roots when your equations have parenthesis or two terms (a & c).  | a. x2 = 12 | b. 8x2 = 392 |
| c. 7x2 – 3 = 445 | d. (x – 4)2 = 9  |
| e. 2(x + 2)2 = 72 | f. 3(x – 3)2 + 2 = 26 |
| *8. Solve equations by completing the square* | Move the c term to the right sideUse  to complete the square and then apply square root method | 17. Solve x2 + 4x + 11 = 10 | 18. Solve x2 – 16x + 52 = 0 |
| *9. Solve equations by using Quadratic Formula* | Use Q.F. when the equation is in standard form and number diamonds does not work. $$x=\frac{-b\pm \sqrt{b^{2}-4ac}}{2a}$$ | a. x2 + 10x + 15 = 0 | b. 2x2 + 10x = 1 |
| c. 3x2 + 6x + 3 = 0 | d. 8x2 -4x + 7 = 2 |
| *10. Use the discriminant to determine the number of solutions* | Discriminant: b2 – 4acIf the discriminant is:Positive: two realZero: one realNegative: zero real | a. Calculate the discriminant and tell number of solutions:6x2 + 2x + 1 = 0 | b. Calculate the discriminant and tell how many times it will cross the x-axis. 6x2 – 7x – 3 = 0 |
| *11. Determine the best method for solving quadratic equations.*  | Use graphic organizer to determine the best method for solving each equation.  | a. x2 – 9 = 5 | b. 6x2 + 8x + 1 = 0 |
| c. 3(x + 5)2 = 64 | d. 5x2 – 7x = 0 |
| e. x2 + 12x + 30 = -5 | f. 3x2 + 13x + 12 = 0 |
| g. 5(x – 2)2 = 125 | h. 5x2 – 3x – 1 = 7 |
| i. x2 – 16 = 0 | j. x2 – 15x + 56 = 0  |