Algebra I

Lesson 9.6 – Solving Quadratic Functions by Factoring Mrs. Snow, Instructor

As with all equations, we know that there are algebraic methods we can use to solve the equation. Using our factoring techniques from chapter 8, and the **Zero Product Property**, we can solve quadratic equations algebraically.

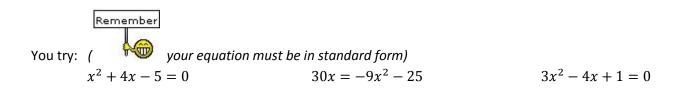
Vocabulary

Zero Product Property – If the product of two quantities equals zero, at least one of the quantities must equal zero. If ab = 0, then a = 0 or b = 0.

$(\Delta) (\bigcirc) = 0$ $\Delta = 0 or \bigcirc = 0$	Whatever the expressions are, if you have a product, you may set each expression equal to zero and solve.
So: $(\bigcirc) \times (\cancel{2}) \times (\bigcirc) = 0$ $\bigcirc = 0 \cancel{2} = 0 \bigcirc = 0$	Yes!! This goes for products of 3, 4 or more expressions!

After a quadratic equation is factored, there will be 2 quantities equal to zero, using the zero product property, the factors are set equal to zero and the solve for x. *Check your solutions by graphing the equation!*

$x^{2} + x - 12 = 0$ (x + 4)(x - 3) = 0	 Factor the quadratic equation Set each factor equal to zero and solve
x + 4 = 0 or $x - 3 = 0$	3. Solutions are the zeros.
x = -4 or $x = 3$	



Application:



The height of a diver above the water during a dive can be modeled by $h = 16t^2 + 8t + 24$, where *h* is height in feet and *t* is time in seconds. Find the time it takes for the diver to reach the water. (When the diver hits the water what is the height???)