

AD# _____

Zero Product Property (ZPP)

Name: _____

Definitions**Example**

Standard Form of a Quadratic Equation	<p>An equation in the form $ax^2 + bx + c = 0$ where $a \neq 0$ is called a _____ in _____ form.</p> <p>The letters a, b, and c are called _____. The quadratic coefficient _____ is the coefficient of x^2, the linear coefficient _____ is the coefficient of x, and c is the _____ term.</p>	
Zero Product Property	<p>If the _____ of two or more numbers is zero, then one or both of the numbers must be _____.</p> <p>If a or b are two numbers where $a \cdot b = 0$, then $a = 0$, $b = 0$ or both = 0.</p>	
Line of Symmetry	<p>When a graph or shape can be folded in half so that the two halves are exactly the same, they are _____.</p> <p>The line where two halves were folded is called a _____ of _____.</p>	

1. Using the zero product property, solve the following equations.

a. $(x - 3)(x + 6) = 0$	b. $(2x - 7)(x - 3) = 0$
c. $(x + 12)(2x - 3) = 0$	d. $(x - 5)^2 = 0$
e. $3x(x - 2)(2x - 9) = 0$	f. $(5x - 3)(x - 7) = 0$

2. Solve the following quadratic equations. If needed, set = 0 then factor.

a. $x^2 + 6x + 8 = 0$	b. $0 = 3x^2 - 7x + 4$
c. $3x^2 - x - 14 = 0$	d. $0 = 3(x - 3)(2x + 5)$
e. $8 = 15x^2 + 2x$	f. $4x^3 + 30x^2 - 54x = 0$
g. $5x^2 - x = 0$ (*hint GCF)	h. $18x^2 - 3x + 4 = -3x^2 - 12x + 16$

3.a. Find the roots (x-intercepts) of $y = x^2 - 2x - 8$. (,) and (,)

What is the x-coordinate of the vertex? _____ How do you know?

b. Use your answer from part (a) to find the y-coordinate of the vertex. Then write the vertex as a point (x,y).

c. On your own graph paper, make a table and neatly graph the equation from part (a). ☺