Name _____

SOLVING QUADRATIC EQUATIONS BY FACTORING – Day 1

Recall that a **linear equation** is an equation whose largest exponent is 1, for example: $2x + 5 = 13$
This equation has one solution, x = _____.

A **quadratic equation** is an equation whose largest exponent is 2, for example: $2x^2 + 5x = 13$
This equation has two solutions, but how do we find them?

Quadratic equations can be solved using the "Zero Factor Principle," which is illustrated in the following example:

Example 1: Fill in the boxes for the missing factor: Factor ● Factor ═ Product

$$\boxed{8} \bullet \boxed{} = \boxed{0}$$

$$\boxed{} \bullet \boxed{3} = \boxed{0}$$

Zero Factor Principle:

$$\boxed{x} \bullet \boxed{} = \boxed{0}$$

   If a product is 0, at least _____

   of the factors is _____.

$$\boxed{(x + 5)} \bullet \boxed{} = \boxed{0}$$

Standard Form of a Quadratic Equation: $\boxed{} = \boxed{0}$

STEPS TO SOLVING A QUADRATIC EQUATION BY FACTORING:
1) Set = 0 (Standard Form)
2) FACTOR COMPLETELY
3) Set each factor =0
4) Solve

Solve.

1) $(3n - 4)(3n + 5) = 0$	2) $x^2 + 3x - 28 = 0$

3) $-15 - 12x = -3x^2$

4) $3x^2 = 6x$

5) The area of a rectangular room is given by the equation $2w^2 - 14w = 36$, where w is the width of the room. Find the width.