TOPIC: QUADRATIC EQUATIONS AND APPLICATIONS

Solving Quadratic Equations by Factoring

◆ A **quadratic equation** is an equation that can be written in the form: `New` $ax^2 + bx + c = 0$

(Standard Form)

▶ To solve a quadratic equation, write in standard form, factor, then set each factor equal to _____ & solve for x.

New	Solving Quadratic Equations by Factoring

$$x^2 + 10x + 21 = 0$$

Factor: $(\,x + \quad)(\,x + \quad) = 0$

Set each factor $= 0$:   _____ $= 0$ _____ $= 0$
(Zero Product Property)

Check answers:

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EXAMPLE Solve the quadratic equation by factoring.

$$-x^2 = 3x - 4$$

Factors of $a \cdot c = $ ____	Sum of factors

HOW TO: Solve Quad Eqns by Factoring

1) Write in **standard form**

2) Factor using any method

3) Set each factor $= 0$, solve for x

4) Check answers by plugging into orig. eqn

PRACTICE Use the zero product rule to solve the following equations for x.

(A)

$$(x - 5)(x + 3) = 0$$

(B)

$$2(x - 4)(x + 6) = 0$$

PRACTICE Solve the following quadratic equations.

(A)

$$2x^2 - 10x = 0$$

(B)

$$2x^2 = 5x + 3$$

(C)

$$\frac{x^2}{2} - 4 = x$$