

Section 1.3: Quadratic Equations

Key Topics: quadratic equations, zero-product property, methods of solving quadratic equations, discriminant

Quadratic Equation

A _____ equation in the variable x is an equation equivalent to the equation

$$\text{_____},$$

where a , b , and c are real numbers and _____.

Zero-Product Property

Let A and B be two algebraic expressions. Then $AB = 0$ if and only if _____ or _____.

Solving a Quadratic Equation by Factoring

Step 1 _____

Step 2 _____

Step 3 _____

Step 4 _____

Step 5 _____

Square Root Property

Suppose u is any _____ expression and _____. If $u^2 = d$, then _____.

Perfect-Square Trinomial

A _____ trinomial in x with coefficient of _____ equal to _____ is a _____ if the constant term is the _____ of _____ the coefficient of x .

Method of Completing the Square

Step 1 _____

Step 2 _____

Step 3 _____

Step 4 _____

Step 5 _____

Step 6 _____

Quadratic Formula

The solutions of the quadratic equation in the _____ form $ax^2 + bx + c = 0$ with _____ are given by the formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Solve $2x^2 - x = 12$ using:

1) Factoring

2) Completing the Square

3) Quadratic Formula

Solutions of $ax^2 + bx + c = 0$, Where a, b, and c are All Integers		
Discriminant	Number of Real Solutions	Type of Solutions
Positive, perfect square	_____	_____
Positive, but not a perfect square	_____	_____
Zero	_____	_____
Negative	_____	_____