**Section 1.5—Quadratic Equations**

**Quadratic Equation**—an equation written in the general form where a, b, & c are real numbers and .

**Zero-Product Principle**—If the product of two algebraic expressions is zero, then at least one of the factors is equal to zero. If AB = 0, then A = 0 or B = 0.

**Solving an Equation by Factoring**

1. If necessary, rewrite the equation in the general form by moving all terms to one side, leaving zero on the other side.
2. Factor completely.
3. Apply the zero-product principle, setting each factor containing a variable equal to zero.
4. Solve the equations from step three.
5. Check the solutions in the original equation.

**Example**—Solve by factoring

**The Square Root Property**—If u is an algebraic expression and d is a nonzero real number, then has exactly two solutions:

If , then or

Equivalently,

If , then

**Example**—Solve using the square root property

**The Quadratic Formula**—can be used to find the solutions of a quadratic equation in general form , with

**Example**—Solve using the quadratic formula