Section 6.8 Solving Equations by Factoring and Problem Solving

# Objective 1: Solving Polynomial Equations by Factoring

A **polynomial equation** is the result of setting two polynomial expressions equal to each other. For example, is a polynomial equation.

A polynomial equation is in **standard form** if one side of the equation is and the other side is a polynomial expression in standard form. For example, is a polynomial equation in standard form.

The degree of a polynomial equation in standard form is the highest degree of any of its terms. So is a degree polynomial equation. A quadratic equation can also be called a degree polynomial equation.

One method of solving a polynomial equation written in standard form is to factor the polynomial expression and apply the zero-factor property.

**Zero-Factor Property:** If and are real numbers and , then or or both.

Solve the equation.

|  |  |
| --- | --- |
| a. | b. |

|  |  |
| --- | --- |
| c. | d. |

# Objective 2: Solving Problems Modeled by Polynomial Equations

Some application problems may be modeled by polynomial equations. When solving these problems, keep in mind that a solution of an equation that models a problem is not always a solution to the problem.

The shorter leg of a right triangle is centimeters less than the other leg. Find the length of the two legs if the hypotenuse is centimeters.