Section 7.6 Solving Quadratic Equations by Factoring

A **quadratic equation** is an equation that can be written in the form

$$ax^{2}+bx+c=0$$

where $a$, $b$, and $c$ are real numbers and $a\ne 0$.

The form $ax^{2}+bx+c=0$ is called the **standard form** of a quadratic equation.

# Objective 1: Solving Quadratic Equations by Factoring

Some quadratic equations can be solved by making use of factoring and the **zero factor property**.

**Zero Factor Property:** If $a$ and $b$ are real numbers and if $ab=0$, then $a=0$ or $b=0$ or both.

In other words, if the product of two numbers is $0$, then at least one of the numbers must be $0$.

Solve the equation.

|  |  |
| --- | --- |
| a. $\left(x-5\right)\left(x+8\right)=0$ | b. $\left(3x-2\right)\left(2x-1\right)=0$ |
| c. $x^{2}+10x+24=0$ | d. $3x^{2}-6x=0$ |
| e. $3x^{2}-6x=24$ | f. $4x^{2}-7x+3=0$ |
| g. $10x^{2}=2-x$ | h. $5x^{2}=45$ |