Name: _____ Date: _____

7.4 Part 2 Solving Polynomials By Factoring

Essential Question How can you solve a polynomial equation?

A polynomaisl is in _____ form when it is written as a _____ of factors.

Standard form	Factored form
$x^2 + 2x$	$x(x + 2)$
$x^2 + 5x - 24$	$(x - 3)(x + 8)$

When one side of an equation is a polynomial in factored form and the other side is zero, use the _____ _____ Property to solve the polynomial equation. The solutions of a polynomial equation are also called _____.

EXAMPLE 1 **Solving Polynomial Equations**

Solve each equation.

a. $2x(x - 4) = 0$ **b.** $(x - 3)(x - 9) = 0$

When two or more roots of an equation are the same _____, the equation has _____ roots.

EXAMPLE 2 **Solving Polynomial Equations**

Solve each equation.

a. $(2x + 7)(2x - 7) = 0$ **b.** $(x - 1)^2 = 0$ **c.** $(x + 1)(x - 3)(x - 2) = 0$

EXAMPLE 3 Solving Equations by Factoring

Solve (a) $2x^2 + 8x = 0$ and (b) $6n^2 = 15n$.

Factor the polynomial.

1. $5z^2 + 30$ **2.** $3x^2 + 14x$ **3.** $8y^2 - 24y$

Solve the equation. Check your solutions.

4. $(3s + 5)(5s + 8) = 0$ **5.** $(b + 7)^2 = 0$ **6.** $(d - 2)(d + 6)(d + 8) = 0$