LESSON 8.4

Investigating Algebra Activity: Solving Factored Equations

For use before the lesson "Solve Polynomial Equations in Factored Form"

Materials: paper and pencil

QUESTION   **How can you solve an equation that is in factored form?**

EXPLORE   **Solve equations in factored form**

STEP 1   Complete table
Copy and complete the table by substituting the *x*-values into the given expressions in the first column.

Expression	x-value						
	−3	**−2**	**−1**	**0**	**1**	**2**	**3**
$(x - 3)(x + 1)$	$(-6)(-2) = 12$						
$(x + 2)(x + 3)$							
$(x - 1)(x - 1)$							
$(x + 2)(x - 2)$							

STEP 2   Solve equations
Use the table to solve each of the following equations.

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

c. $(x - 1)(x - 1) = 0$ **d.** $(x + 2)(x - 2) = 0$

STEP 3   Record observations
What did you notice about the solutions of each equation and the factors of that equation?

DRAW CONCLUSIONS   **Use your observations to complete these exercises.**

1. Write a general rule for solving an equation that is in factored form.

Solve the equation using your rule from Exercise 1.

2. $(x - 1)(x + 6) = 0$ **3.** $(x + 4)(x + 2) = 0$

4. $(x - 5)(x - 3) = 0$ **5.** $(x + 1)(x - 1) = 0$

6. $(x + 3)(x + 3) = 0$ **7.** $(x - 3)(x + 7) = 0$

8. $x(x - 4) = 0$ **9.** $x(x - 2)(x - 2) = 0$