Lesson 6-5 *More Two-Step Equations*

An equation in the form $p(x + q) = r$ contains two factors, p and $(x + q)$ and is considered a two-step equation.

Example 1

Solve $6(x + 2) = 42$. Check your solution.

$6(x + 2) = 42$	Write the equation.
$\dfrac{6(x + 2)}{6} = \dfrac{42}{6}$	Division Property of Equality
	Simplify.
$x + 2 = 7$	
$\underline{-2 = -2}$	Subtraction Property of Equality
$x = 5$	Simplify.
Check $\quad 6(x + 2) = 42$	Write the original equation.
$6(5 + 2) \overset{?}{=} 42$	Replace x with 5.
$6(7) \overset{?}{=} 42$	Add. Multiply.
$42 = 42 \checkmark$	The solution checks.

The solution is 5.

Example 2

Solve $\dfrac{4}{5}(x - 5) = 4$. Check your solution.

$\dfrac{4}{5}(x - 5) = 4$	Write the equation.
$\dfrac{5}{4} \cdot \dfrac{4}{5}(x - 5) = \dfrac{5}{4} \cdot 4$	Multiplication Property of Equality
$(x - 5) = \dfrac{5}{4} \cdot \dfrac{4}{1}$	$\dfrac{5}{4} \cdot \dfrac{4}{5} = 1$; write 4 as $\dfrac{4}{1}$.
$x - 5 = 5$	Simplify.
$\underline{+ 5 = +5}$	Addition Property of Equality
$x \quad = 10$	Simplify.
Check $\quad \dfrac{4}{5}(x - 5) = 4$	Write the original equation.
	Replace x with 10.
$\dfrac{4}{5}(10 - 5) = 4$	Subtract then multiply.
$\dfrac{4}{5}(5) = 4 \checkmark$	The solution checks.

The solution is 10.

Exercises

Solve each equation.

1. $7(x + 4) = 49$ **4.** $25(x - 3) = 175$

5. $\dfrac{3}{4}(x - 12) = 3$ **7.** $\dfrac{7}{9}(x + 5) = 21$

Lesson 5 Skills Practice

More Two-Step Equations   Solve each equation. Check your solution.

1. $3(x + 5) = 39$

2. $7(x + 8) = 49$

7. $\frac{4}{9}(x + 13) = 8$

8. $\frac{9}{10}(x + 8) = 18$

17. $-\frac{1}{8}(x - 4) = -4$

18. $\frac{2}{5}(x - 16) = -6$

21. $\frac{3}{5}(x - 19) = -15$

22. $0.1(x + 7) = 3.5$

23. $-2.8(x + 4.9) = 18.2$

24. $6.5(x - 4) = 19.5$