Name _____ Date _____

WORKSHEET 3.5: SOLVING EQUATIONS USING THE DISTRIBUTIVE PROPERTY

Follow the steps below to solve equations that have parentheses:

1. Use the distributive property to eliminate parentheses. The distributive property states that $a(b + c) = ab + ac$ and $a(b - c) = ab - ac$.
2. Simplify one or both sides of the equation by combining similar terms.
3. Write equivalent equations, remembering to add or subtract before multiplying or dividing, to isolate the variable.
4. Check the work by substituting the value of the variable into the original equation.

EXAMPLES

$3(x + 2) = 18$	$2(3x - 5) + x = 4$	$-2(x - 4) = 20$
$3x + 6 = 18$	$6x - 10 + x = 4$	$-2x + 8 = 20$
$3x = 12$	$7x - 10 = 4$	$-2x = 12$
$x = 4$	$7x = 14$	$x = -6$
	$x = 2$	

DIRECTIONS: Solve each equation.

1. $5(x - 7) = 90$
2. $4(x + 2) = 4$
3. $-3(x - 5) = 0$
4. $2(x + 3) = -18$
5. $4(x + 3) + 2x = 24$
6. $2(3x + 2) = 20$
7. $-3(x + 5) = 15$
8. $-4(3x - 2) = 4$

CHALLENGE: Find the error in the problem below. Then correct it.

$$-3(x + 12) = 15$$
$$-3x + 36 = 15$$
$$-3x = -21$$
$$x = 7$$

Name Answer Key Date

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EXAMPLES

$3(x + 2) = 18$	$2(3x - 5) + x = 4$	$-2(x - 4) = 20$
$3x + 6 = 18$	$6x - 10 + x = 4$	$-2x + 8 = 20$
$3x = 12$	$7x - 10 = 4$	$-2x = 12$
$x = 4$	$7x = 14$	$x = -6$
	$x = 2$	

DIRECTIONS: Solve each equation.

1. $5(x - 7) = 90$

   $X = 25$

2. $4(x + 2) = 4$

   $X = -1$

3. $-3(x - 5) = 0$

   $X = 5$

4. $2(x + 3) = -18$

   $X = -12$

5. $4(x + 3) + 2x = 24$

   $X = 2$

6. $2(3x + 2) = 20$

   $X = 2\frac{2}{3}$

7. $-3(x + 5) = 15$

   $X = -10$

8. $-4(3x - 2) = 4$

   $X = \frac{1}{3}$

CHALLENGE: Find the error in the problem below. Then correct it.

$$-3(x + 12) = 15$$
$$-3x + 36 = 15$$
$$-3x = -21$$
$$x = 7$$

The error was in the first step. -3 distributed to 12 is -36, not +36. $X = -17$