Simplifying Expressions (1A4.0)

Name _____

Class _____   Date _____

Score _____

The **Distributive Property** allows us to multiply first and then add (or subtract) even when the addition is in parenthesis.

$a(b + c)$ or $x(y - z)$

$a(b + c)$ $x(y - z)$

$a(b + c) = ab + ac$ $x(y - z) = xy - xz$

$a(b + c) \neq ab + cz$ $x(y - z) \neq xy - z$

To better understand the distributive rule, think about this expression:

$$2(3 + 4) =$$

One way to solve it is by adding inside the parentheses, then multiplying:

$$2(7) = 14$$

The answer is 14.

But you could also solve it by distributing:

$$2(3 + 4) = (2 \times 3) + (2 \times 4) = 6 + 8 = 14$$

Here's what happens if you apply the distributive rule the **wrong** way:

$$2(3 + 4) \neq (2 \times 3) + 4 = 6 + 4 = 10$$

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1) Which of the following is equivalent to:

$$2(x\text{-}3) + 3(x\text{-}7) = 8$$

A. $2x - 6 + 3x - 21 = 8$
B. $2x - 6 + 3x + 21 = 8$
C. $2x - 3 + 3x - 21$
D. $2x + 3 + 3x - 21$

2) Which of the following is equivalent to

$$5(6x - 1) - 2(x\text{-}3) = 29$$

A. $30x - 5 - 2x - 3 = 29$
B. $30x - 5 - 2x - 6 = 29$
C. $30x - 5 - 2x + 6 = 29$
D. $30x - 5 - 2x + 3 = 29$

3) Which of the following is equivalent to

$$\frac{10x\text{-}6}{2} + \frac{4(3x + 6)}{3} = 31$$

A. $10x - 6 + 12x + 24 = 31$
B. $5x - 3 + 3x + 12 = 31$
C. $10x - 12 + 4x + 2 = 31$
D. $5x - 3 + 4x + 12 = 31$

4) Which of the following is equivalent to

$$7(x\text{-}5) - 3(2x + 9) = 64$$

A. $7x - 5 - 6x + 9 = 64$
B. $7x - 35 - 6x - 27 = 64$
C. $7x + 35 - 6x + 27 = 64$
D. $7x - 5 - 6x - 27 = 64$

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5) Which of the following is equivalent to:

$$-5(2x-3) - 4(x+6) = -37$$

A. $-10x - 15 - 4x - 24 = -37$
B. $-5x - 5 - 4x + 6 = -37$
C. $-10x + 15 -4x - 24 = -37$
D. $-10x + 5 - 4x - 12 = -37$

6) Which of the following is the equivalent to the equation shown below?

$$15x - 75 = 300$$

A. $5(3x - 20) = 300$
B. $15(x - 75) = 300$
C. $15(x - 6) = 300$
D. $15(x - 5) = 300$

7) Which of the following is equivalent to the equation shown below?

$$52x - 39 = 169$$

A. $52(x - 2) = 169$
B. $26(x - 3) = 169$
C. $26(x - 2) = 169$
D. $13(x - 3) = 169$

8) Which of the following is equivalent to the equation shown below?

$$96x + 132 = 264$$

A. $96(x + 1) = 264$
B. $48(x + 3) = 264$
C. $24(3x + 7) = 264$
D. $12(x + 11) = 264$

9) Which of the following is equivalent to the equation shown below?

$$-400x - 60 = 840$$

A. $-40(x - 60) = 840$
B. $-30(15x - 2) = 840$
C. $-20 (20x - 3) = 840$
D. $-15(25x - 4) = 840$

10) Which of the following is equivalent to the equation shown below?

$$256x - 112x = 144$$

A. $2(128x - 72) = 144$
B. $4(64x - 26) = 144$
C. $12(24x - 9) = 144$
D. $16(16x - 7) = 144$

11) Which of the following is equivalent to

$$(7 - 2x) < 6(x +3)$$

A. $7 - 2x < 6x + 3$
B. $7 - 2x < 6x + 12$
C. $7 - 2x < 6x + 18$
D. $7 - 2x < 6x + 216$

12) Which of the following is equivalent to:

$$(3 + x) > \tfrac{1}{2}(4x + 16)$$

A. $3 + x > 4x + 8$
B. $3 + x > 2x + 8$
C. $3 + x > \tfrac{1}{4} x + 4$
D. $3 + x > x + 4$

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13) Which of the following is equivalent to:

$$3(x - 1) > x - 7$$

A. $3x - 3 > x - 7$
B. $3x - 1 > x - 1$
C. $3x + 3 > x - 7$
D. $3x + 1 > x - 7$

14) Which of the following is equivalent to:

$$2(9 - x) < x^2$$

A. $9 - 2x < x^2$
B. $18 - 2x < x^2$
C. $36 - x < x^2$
D. $512 - x^2 < x^2$

15) Which of the following is equivalent to:

$$-x > 2(10 - x)$$

A. $-x > 200 - x$
B. $-x > 20 - x$
C. $-x > 20 - 2x$
D. $-x > 20 - 20x$

16) Which of the following is equivalent to:

$$7 - 15x > 2(2 - 6x)$$

A. $11 > 27x$
B. $9 > -27x$
C. $5 > 9x$
D. $3 > 3x$