

# Distributive Property

Multiplication 'distributes' over addition (and subtraction):

$$a(b + c) = ab + ac$$

$$a(b - c) = ab - ac$$

1. Substitute the given values for the equation  $a(b + c) = ab + ac$ . Study the example.

<p>a. <math>a = 2, b = 10, \text{ and } c = 4.</math></p> $\underline{2(10 + 4) = 2 \times 10 + 2 \times 4}$	<p>b. <math>a = 7, b = 8, \text{ and } c = 5</math></p>	<p>c. <math>a = 4, b = x, \text{ and } c = 5</math></p>
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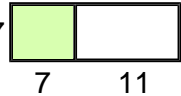
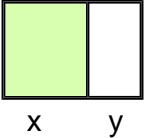
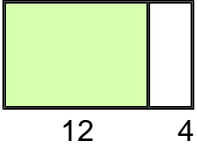
2. Substitute the given values for the equation  $a(b - c) = ab - ac$ .

<p>a. <math>a = 2, b = 10, \text{ and } c = 4.</math></p>	<p>b. <math>a = 3, b = x, \text{ and } c = 7</math></p>	<p>c. <math>a = 9, b = x, \text{ and } c = y</math></p>
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3. Take out the parentheses using the distributive property.

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|----------------------|-------------------|-------------------|
| a. $6(7 + 0.2)$      | b. $6(x + 10)$    | c. $2(x - 5)$     |
| d. $4(110 + 40 + 3)$ | e. $8(x - y)$     | f. $4(8 - w - z)$ |
| g. $y(2 + z)$        | h. $a(b - c + 4)$ | i. $4(t + r - s)$ |

4. Write TWO expressions for the area according to the example.

<p>a. </p> <p>Area... as one rectangle: <math>7 \times (7 + 11)</math> as two rectangles: <math>7 \times 7 + 7 \times 11</math></p>	<p>b. </p>	<p>c. </p>
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5. Write these expressions using the distributive property of multiplication.  
Find their values in a, b, and c.

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|--------------------------------|----------------------------------|----------------------------|
| a. $8 \times 2 + 8 \times 500$ | b. $7 \times 200 - 7 \times 0.4$ | c. $4(100) - 4(20) + 4(5)$ |
| d. $9y + 9z$                   | e. $7a - 7b + 7c$                | f. $8x + 8$                |

6. Solve using the distributive property.

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|---|-------------------|---------------------|
| a. $5 \times 98 = 5 \times (100 - 2) =$ | b. $8 \times 999$ | c. $4 \times 20.5$  |
| d. $8 \times 21.4$                      | e. $4 \times 49$  | f. $3 \times 3,028$ |