

7.1 The Distributive Property

DISTRIBUTIVE PROPERTYFor any numbers a , b , and c ,

$$a(b + c) = ab + ac \quad \text{and} \quad (b + c)a = ba + ca$$

EXAMPLE:

$$5(11 + 12) = 5 \cdot 11 + 5 \cdot 12 = 55 + 60 = 115$$

$$7(3 + 6) = 7 \cdot 3 + 7 \cdot 6 = 21 + 42 = 63$$

$$6(2 + 4) = 6 \cdot 2 + 6 \cdot 4 = 12 + 24 = 36$$

EXAMPLE: Use the Distributive Property to write each expression as an equivalent algebraic expression.

a.) $3(m - 4)$

$$3m - 12$$

b.) $2(x + 4)$

$$2x + 8$$

EXAMPLE: Use the Distributive Property to write each expression as an equivalent algebraic expression.

c.) $4(x - 2)$

$$4x - 8$$

d.) $-2(n - 3)$

$$-2n - 6$$

$$-2n + 6$$

EXAMPLE: Use the Distributive Property to write each expression as an equivalent algebraic expression.

e.) $(p + 4)5$

$$5p + 20$$

f.) $(b + 6)3$

$$3b + 18$$

EXAMPLE: Use the Distributive Property to write each expression as an equivalent algebraic expression.

g.) $(3.7)(r - 1)$

$$\boxed{3.7r - 3.7}$$

h.) $-7.4(10 + a)$

$$-74 + -7.4a$$

$$\boxed{-74 - 7.4a}$$

EXAMPLE: Use the Distributive Property to write each expression as an equivalent algebraic expression.

i.) $\left(\frac{4}{5}\right)(t - 15)$

$$\boxed{\frac{4}{5}t - 12}$$

$$\frac{4}{5} \cdot \frac{15}{1} = \frac{60}{5} = 12$$

expression.

j.) $\left(-\frac{1}{2}\right)(n + 4)$

$$-\frac{1}{2}n + -2$$

$$\boxed{-\frac{1}{2}n - 2}$$