

## Lesson 9-2

## Example 1

Simplify.

a.  $(4x)(3y)$

b.  $(-3m)(6n)$

c.  $1-\frac{1}{2}ab^2(-8c)$

## Solution

$$\begin{aligned} \text{a. } (4x)(3y) &= (4)(3)(x)(y) \\ &= 12xy \end{aligned}$$

$$\begin{aligned} \text{b. } (-3m)(6n) &= (-3)(6)(m)(n) \\ &= -18mn \end{aligned}$$

$$\begin{aligned} \text{c. } 1-\frac{1}{2}ab^2(-8c) &= 1-\frac{1}{2}2(-8)(ab)(c) \\ &= 4abc \end{aligned}$$

## Example 2

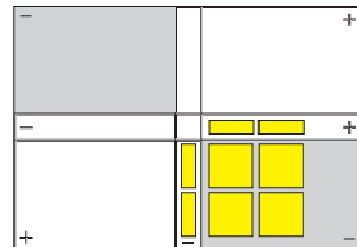
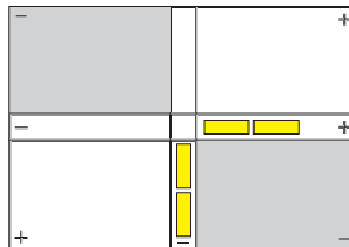
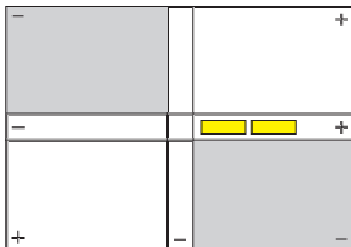
**MODELING** Use Algeblocks and a Quadrant Mat to find the product  $2x(-2x)$ .

## Solution

*Step 1* Place two  $x$ -blocks in the positive part of the horizontal axis.

*Step 2* Place two  $x$ -blocks in the negative part of the vertical axis.

*Step 3* Use  $x^2$ -blocks to form the area in the quadrant bounded by the  $x$ -blocks.



Read the answer from the mat:  $-4x^2$ .

**Example 3****Simplify.**

a.  $(4v^2)(-7v^4)$

b.  $(5a^3b^4)(-2ab^2c)$

**Solution**

a. 
$$\begin{aligned}(4v^2)(-7v^4) &= (4)(-7)(v^2 \cdot v^4) \\ &= -28v^{2+4} \\ &= -28v^6\end{aligned}$$

b. 
$$\begin{aligned}(5a^3b^4)(-2ab^2c) &= (5)(-2)(a^3 \cdot a)(b^4 \cdot b^2)c \\ &= -10(a^{3+1})(b^{4+2})c \\ &= -10a^4b^6c\end{aligned}$$

**Example 4****Simplify.**

a.  $(4s^5)^2$

b.  $(-2x^4y^3)^4$

**Solution**

a. 
$$\begin{aligned}(4s^5)^2 &= (4)^2(s^5)^2 \\ &= 16s^{5 \cdot 2} \\ &= 16s^{10}\end{aligned}$$

b. 
$$\begin{aligned}(-2x^4y^3)^4 &= (-2)^4(x^4)^4(y^3)^4 \\ &= 16(x^{4 \cdot 4})(y^{3 \cdot 4}) \\ &= 16x^{16}y^{12}\end{aligned}$$