

## Lesson 1-7

## Example 1

Evaluate each expression when  $a = -4$  and  $b = 3$ .

a.  $a^2$

b.  $b^3$

c.  $a^2b$

## Solution

$$\begin{aligned} \text{a. } a^2 &= (-4)^2 \\ &= 16 \end{aligned}$$

$$\begin{aligned} \text{b. } b^3 &= 3^3 \\ &= (3)(3)(3) \\ &= 27 \end{aligned}$$

$$\begin{aligned} \text{c. } a^2b &= (-4)^2(3) \\ &= (16)(3) \\ &= 48 \end{aligned}$$

## Example 2

Simplify

a.  $x^3 \cdot x^5$

b.  $(b^2)^7$

c.  $(3^3 \cdot x)^2$

## Solution

$$\begin{aligned} \text{a. } x^3 \cdot x^5 &= x^{3+5} \\ &= x^8 \end{aligned}$$

$$\begin{aligned} \text{b. } (b^2)^7 &= b^{2 \cdot 7} \\ &= b^{14} \end{aligned}$$

$$\begin{aligned} \text{c. } (3^3 \cdot x)^2 &= (3^3 \cdot 2)(x^2) \\ &= 3^6 x^2 \\ &= 729x^2 \end{aligned}$$

## Example 3

Simplify

a.  $\frac{x^9}{x^2}$

b.  $\left(\frac{n}{2}\right)^3$

## Solution

$$\begin{aligned} \text{a. } \frac{x^9}{x^2} &= x^{9-2} \\ &= x^7 \end{aligned}$$

$$\begin{aligned} \text{b. } \left(\frac{n}{2}\right)^3 &= \frac{n^3}{2^3} \\ &= \frac{n^3}{8} \end{aligned}$$