Lesson 2-7

Example 1

Evaluate each expression. Let $x = 5$ and $y = -2$.

a. x^3 **b.** y^2 **c.** xy^3

Solution

a. $x^3 = 5^3$
$= 5 \cdot 5 \cdot 5$
$= 125$

b. $y^2 = (-2)^2$
$= -2 \cdot -2$
$= 4$

c. $xy^3 = (5)(-2)^3$
$= (5)(-2)(-2)(-2)$
$= (5)(-8)$
$= -40$

Example 2

Simplify.

a. $b^4 \cdot b^3$ **b.** $(3x^3)^2$ **c.** $(a^2b)^3$

Solution

a. $b^4 \cdot b^3 = b^{4+3}$
$= b^7$

b. $(3x^3)^2 = (3^2)(x^3)^2$
$= 9x^{3 \cdot 2}$
$= 9x^6$

c. $(a^2b)^3 = a^{2 \cdot 3}b^{1 \cdot 3}$
$= a^6b^3$

Example 3

Simplify.

a. $\frac{w^6}{w^3}$, $w \neq 0$ **b.** $\left(\frac{g}{8}\right)^2$ **c.** $\left(\frac{n^5}{n^4}\right)^3$, $n \neq 0$

Solution

a. $\frac{w^6}{w^3} = w^{6-3}$
$= w^3$

b. $\left(\frac{g}{8}\right)^2 = \frac{g^2}{8^2}$
$= \frac{g^2}{64}$

c. $\left(\frac{n^5}{n^4}\right)^3 = (n^{5-4})^3$
$= (n^1)^3$
$= n^3$