

LESSON **Ready To Go On? Skills Intervention**
6-1 Integer Exponents

Evaluating Expressions with Zero and Negative Exponents

Zero Exponent: Any nonzero number raised to the zero power is ____.

$$4^0 = \underline{\hspace{2cm}}$$

Negative Exponent: A nonzero number raised to a negative exponent is equal to one divided by that number raised to the _____ exponent.

$$3^{-4} = \frac{1}{3^{\square}}$$

Evaluate each expression for the given value(s) of the variable(s).

A. $a^{-3}b^2$ for $a = 2$ and $b = 3$

$$\underline{\hspace{1cm}}^{-3} \cdot 3^{\square}$$

$$= \frac{1}{2^{\square}} \cdot \underline{\hspace{1cm}}$$

$$= \frac{1}{2 \cdot \square \cdot \square} \cdot \underline{\hspace{1cm}}$$

$$= \frac{1}{\square} \cdot 9$$

$$= \frac{9}{\square}$$

Substitute ____ for a and ____ for b .

Use the definition $x^{-n} = \frac{1}{x^n}$ and simplify.

Write the power in the denominator as a product.

Evaluate the power in the denominator.

Simplify.

B. x^0y^{-3} for $x = 7$ and $y = -5$

$$\underline{\hspace{1cm}}^0 \cdot (-5)^{\square}$$

$$= \underline{\hspace{1cm}} \cdot \frac{1}{(-5)^{\square}}$$

$$= 1 \cdot \frac{1}{\square}$$

$$= -\frac{\square}{\square}$$

Substitute ____ for x and ____ for y .

Any nonzero number raised to the zero power is ____ and $x^{-n} = \frac{1}{x^n}$.

Evaluate the power.

Simplify.

Simplifying Expressions with Zero and Negative Exponents

A. $9a^{-7}$

$$9a^{-7} = 9 \cdot \underline{\hspace{1cm}}$$

$$= 9 \cdot \frac{1}{\square}$$

$$= \frac{9}{\square}$$

B. $\frac{x^{-6}}{y^{-4}}$

$$\frac{x^{-6}}{y^{-4}} = x^{-6} \cdot \frac{1}{\square}$$

$$= \frac{1}{\square} \cdot \frac{y^4}{1} = \frac{\square}{x^6}$$