

Lesson 6.1: Properties of Exponents

Properties of Exponents

a. *Multiplication Property*

$$b^m \cdot b^n = b^{m+n}$$

$$\text{Ex: } 2^3 \cdot 2^4 =$$

b. *Power to a Power*

$$(b^m)^n = b^{m \cdot n}$$

$$\text{Ex: } (2^3)^4 =$$

c. *Product to a Power*

$$(ab)^m = a^m b^m$$

$$\text{Ex: } (2 \cdot 3)^2 =$$

d. *Division Exponents*

$$\frac{b^m}{b^n} = b^{m-n} \quad b \neq 0$$

$$\text{Ex: } \frac{2^5}{2^2} =$$

e. *Quotient to a Power*

$$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m} \quad b \neq 0$$

$$\text{Ex: } \left(\frac{3^2}{3}\right)^3 =$$

f. *Negative Exponents*

$$b^{-m} = \frac{1}{b^m} \quad b \neq 0$$

$$\text{Ex: } 3^{-2} =$$

g. *Zero Exponents*

$$b^0 = 1 \quad b \neq 0$$

$$\text{Ex: } 2^{-3} \cdot 2^3 =$$

Example 1:

Evaluate

a. $\left(\frac{a^2}{b^{-3}}\right)^3 =$

b. $(-y^2)^5 \cdot y^2 \cdot y^{-12} =$

c. $\frac{rs^2}{(rs^{-1})^3} =$

Scientific Notation: number in the form $c \times 10^n$ where $1 \leq c \leq 10$ and n is an integer2500 \rightarrow .00043 \rightarrow