

Lesson: Handling Coefficients

Example 1:
 $(2x^2)^3$

Example 2:
 $(-3x^2y^3)^2$

Example 3:
 $(4y^2)(y^3)$

Example 4:
 $\frac{(3a^2b)^2}{(ab)^2}$

Example 5:
 $\frac{8a^2b}{-2ab}$

Example 6:
 $\frac{(2a^2b^3)(8ab^2)}{(4ab^3)}$

Simplify each of the following questions. How are they different?

a) $(2^5)^2$

b) $(2x^5)^2$

Practice: Exponent Rules

Exponent Rules:

$$x^m \times x^n = x^{m+n}$$

$$x^m \div x^n = x^{m-n}$$

$$(x^m)^n = x^{m \times n}$$

Examples:

Simplify each using the exponent rules. Leave your answers in exponential form.

a. $6^2 \times 6^8$	b. $9^7 \div 9^5$	c. $(5^2)^6$
d. $3^{10} \times 3^3$	e. $4^9 \div 4^6$	f. $(10^5)^3$
g. $(-5)^2(-5)^2$	h. $\frac{(-11)^5}{(-11)^2}$	i. $(p^6)^{11}$
j. $(-2)^2(-2)^5(-2)^4$	k. $\frac{(-1)^5}{(-1)}$	l. $\frac{7^2 \times 7^4}{7^3}$
m. $(2^4)^3 \times 2^8$	n. $\frac{(8^7)^2}{8 \times 8^9}$	o. $(5^3)(5^4)^{-2} \div (5^{-7})$
p. $(2a^2b)(-3ab^3)$	q. $\frac{10x^4y}{2xy}$	r. $\frac{(4ab^7)(-3a^2)}{12ab^5}$

ANSWERS: a. 6^{10} , b. 9^2 , c. 5^{12} , d. 3^{13} , e. 4^3 , f. 10^{15} , g. $(-5)^4$, h. $(-11)^3$, i. p^{66} , j. $(-2)^{11}$, k. $(-1)^4$, l. 7^3 , m. 2^{20} , n. 8^4 , o. 5^2 , p. $-6a^3b^4$, q. $5x^3$, r. $-1a^2b^2$