7.1 Multiplication Properties of Exponents

definitions:
monomial

monomial yes or no?

10 $f+24$ $24f$

h^2 x $\frac{24}{f}$

constant

Product of Powers
To multiply two powers that have the same base, ADD their exponents

$$a^m \, a^n = a^{m+n}$$

Example: $x^4 \, (-12x^2)$

Example: $(6cd^5)(5c^5d^2)$

Power of a Power
MULTIPLY the exponents

$$(a^m)^n = a^{mn}$$

Example: $(x^3)^4$

Example: $[(2^3)^3]^2$

Power of a Product
find the power of each factor and
MULTIPLY the exponents

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

Example: $(2xy^3)^2$

Simplifying Expressions Involving Monomials

conditions:
1. each variable base appears only once
2. there are no powers of powers
3. all fractions are in simplest form

Example: $(8g^3h^4)^2(2gh^5)^4$

Example: $\left(\frac{4}{5}z^3\right)^2 \bullet \left(2z^3\right)^4$