

Worksheet Exponent Laws!!!**LAW #1**When **MULTIPLYING** powers with the _____ base,

- Keep the _____, _____ the exponents

Write each as a single power

a) $2^3 \times 2^4$ b) $\left(\frac{1}{3}\right)^2 \times \left(\frac{1}{3}\right)^5$ c) $b^2 \times b^5$ d) $m^2 n^{-2} \times mn^5$

LAW #2When **DIVIDING** powers with the _____ base,

- Keep the _____, _____ the exponents

Write each as a single power

a) $5^4 \div 5^2$ b) $\frac{8^3}{8^{-6}}$ c) $\frac{x^5 y^6}{x^3 y^{-2}}$ d) $\frac{a^6 b^2 c^3}{a^4 b^{-2} c}$

LAW #3To simplify a **POWER of a POWER**,

- Keep the _____, _____ the exponents

Write each as a single power

a) $(2^3)^2$ b) $(4^3)^{-4}$ c) $\left(\frac{a^2}{b^4}\right)^3$ d) $\left(\frac{1^{10}}{2^3}\right)^2$

LAW #4Any base to the **EXPONENT ONE** is equal to the **BASE**

a) 2^1 b) $\left(\frac{1}{3}\right)^1$ c) $\left(\frac{-2}{3}\right)^1$

LAW #5

Any base to the **EXPONENT ZERO** is equal to ONE

a) 5^0 b) 512^0 c) $\left(\frac{4}{5}\right)^0$

Simplify

a) $(x^3y^4)(x^2y^{-6})$

b) $\frac{x^7y^4}{x^3y^{-2}}$

c) $(2^3)(2^4)$

d) $(2x^2y^3z)^2$

e) $\frac{(8^4)(8^3)}{(8^5)}$

f) $\left(\frac{a}{b^3}\right)^2\left(\frac{a^3}{b}\right)^3$

g) $-\left(\frac{-3}{4}\right)^2$