Negative Exponents

Negative Power Rule: $A^{-m} = \frac{1}{A^m}$

A number raised to a negative exponent is one over that number with a positive exponent.

Example: **Simplify $\frac{4^5}{4^{11}}$ in exponential notation.**

$$\frac{4^5}{4^{11}} = 4^{5-11},$$
$$= 4^{-6},$$
$$= \frac{1}{4^6}.$$

Simplify the following expressions in exponential notation.

1. $\frac{6^2}{6^7}$ **2.** $\frac{12^0}{12^4}$ **3.** $\frac{48^3}{48^5}$

4. $\frac{8}{2^6}$ **5.** $\frac{8^7}{8^8}$ **6.** $\frac{3}{3^{10}}$

Write the following in fractional form using a positive exponent.

1. 6^{-2} **2.** 12^{-4} **3.** $8^{-5} \times 8^3$

4. 2^{-6} **5.** $(8^{-2})^3$ **6.** $3^8 \div 3^{10}$

7. 25^{-13} **8.** $11^5 \div 11^9$ **9.** $(4^4)^{-3}$