Rule for Negative Exponents

If a is a nonzero real number and n is an integer, then $a^{-n} = \frac{1}{a^n}$. In words, a negative exponent indicates the reciprocal of the base.

Section 5.2: More Work with Exponents and Scientific Notation

Power Rules for Exponents

If a and b are nonzero real numbers and m and n are integers:

1. **Power Rule**: $(a^m)^n = a^{mn}$
   To raise a power to a power, multiply the exponents.

2. **Power Rule for Products**: $(ab)^n = a^n b^n$
   To raise a product to a power, raise each factor to that power.

3. **Power Rule for Fractions**: $\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$
   To raise a fraction to a power, raise the numerator and denominator to that power.