Exponents Laws

Law of Multiplication: $x^m \times x^n = x^{m+n}$

Law of Division: $\frac{x^m}{x^n} = x^{m-n} \qquad (x \neq 0)$

Power of a Power: $\left(x^m\right)^n = x^{mn}$

Zero Exponents: $x^0 = 1 \qquad (x \neq 0)$

Negative Exponent:

$x^{-n} = \frac{1}{x^n} \qquad (x \neq 0)$ $\qquad$ $x^n = \frac{1}{x^{-n}} \qquad (x \neq 0)$

$x^{\frac{1}{n}} = \sqrt[n]{x}$ $\qquad$ $x^{\frac{m}{n}} = \left(\sqrt[n]{x}\right)^m = \sqrt[n]{x^m}$

$x^{-\frac{1}{n}} = \frac{1}{\sqrt[n]{x}} = \frac{1}{x^{\frac{1}{n}}}$ $\qquad$ $x^{-\frac{m}{n}} = \frac{1}{\left(\sqrt[n]{x}\right)^m} = \frac{1}{x^{\frac{m}{n}}}$