

Laws of Exponents

$$x^3 \text{ means } x \cdot x \cdot x$$

$$x^2 \cdot x^3 = x^{2+3} = x^5$$

$$x^{-2} \text{ means } \frac{1}{x^2}$$

$$(x^3)^4 = x^{3 \cdot 4} = x^{12}$$

$$x^0 = 1 \text{ for } x \neq 0$$

$$\frac{x^6}{x^4} = x^{6-4} = x^2$$

$$0^0 \text{ is undefined}$$

$$\left(\frac{2x}{y}\right)^3 = \frac{2^3 x^3}{y^3}$$

Rational Exponents

$$x^{\frac{1}{2}} \text{ means } \sqrt{x}$$

$$x^{\frac{2}{3}} \text{ means } \sqrt[3]{x^2}$$

$$x^{\frac{1}{3}} \text{ means } \sqrt[3]{x}$$

$$x^{\frac{3}{4}} \text{ means } \sqrt[4]{x^3}$$

$$x^{\frac{1}{4}} \text{ means } \sqrt[4]{x}$$

$$x^{\frac{2}{5}} \text{ means } \sqrt[5]{x^2}$$

In General

$$x^{\frac{1}{n}} \text{ means } \sqrt[n]{x}$$

$$x^{\frac{m}{n}} \text{ means } \sqrt[n]{x^m}$$