

Exponents #5 - Rational Exponents

Fractional

$$\sqrt{5} \cdot \sqrt{5} = \sqrt{25} = 5 = 5^1$$

Just do it!

So:

$$\sqrt{5} = 5^{1/2}$$

Multi. Law of exponents
+

$$5^{1/2} \cdot 5^{1/2} = 5^1$$

$$\sqrt[3]{2} \cdot \sqrt[3]{2} \cdot \sqrt[3]{2} = \sqrt[3]{8} = 2 \text{ or } 2^1$$

$$2^{1/3} \cdot 2^{1/3} \cdot 2^{1/3} = 2^1$$

So:

$$\sqrt[3]{2} = 2^{1/3}$$

Generally:

$$x^{1/2} = \sqrt{x}$$

$$x^{1/3} = \sqrt[3]{x}$$

$$x^{1/4} = \sqrt[4]{x}$$

etc

So: $4^{-1/2} = \frac{1}{4^{1/2}} = \frac{1}{\sqrt{4}} = \frac{1}{2}$

Integral exponent law write as a root evaluate root

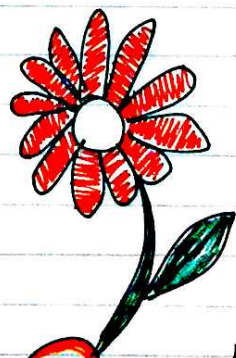
$81^{3/4} = (\sqrt[4]{81})^3 = 3^3 = 27$

do root first evaluate exponent

$$x^{a/b}$$

← exponent

← root



Flower Power!
(the root is on the bottom)