

Fractional Exponents

ER7

- follow the same properties as integer exponents
- the numerator is the exponent of the base
- the denominator is the root of the power

Examples:

- $4^{\frac{1}{2}} = 2$ because the square root of 4 is 2
- $8^{\frac{2}{3}} = 4$ because $8^2 = 64$ and the cube root of 64 is 4

$$4^{\frac{1}{2}} = \sqrt{4^1} = \sqrt{4} = 2$$

$$8^{\frac{2}{3}} = \sqrt[3]{8^2} = \sqrt[3]{64} = 4$$

Ex:

$$81^{\frac{3}{4}} = \left(\sqrt[4]{81}\right)^3 = 3^3 = 27$$

- ① raising it to numerator
 - ② taking the root by denom.
- either order works
- ① taking the root by denom.
 - ② raising it to Num.