

# Rational Exponents & Radical Expressions

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*Simplify expressions with rational exponents*

If  $m$  and  $n$  are positive integers and  $a^{1/n}$  is a real number, then:

$$a^{m/n} = (a^{1/n})^m$$

$$(a^{1/n})^n = a^{(1/n)(n)} = a^1 = a$$

*Write exponential expressions as radical expressions & radical expressions as exponential expressions*

If  $a$  is a real number and  $n$  is a positive integer, then:

$${}^n\sqrt{a} = a^{\frac{1}{n}}$$

In the expression  ${}^n\sqrt{a}$ , the symbols mean the following:

$n$  is the **index**

$\sqrt{\quad}$  is the **radical**

$a$  is the **radicand**