Algebra 1 7.3

Evaluate and rewrite expressions involving rational exponents

Solve equations with rational exponents

rational

inverse operation

radical sign

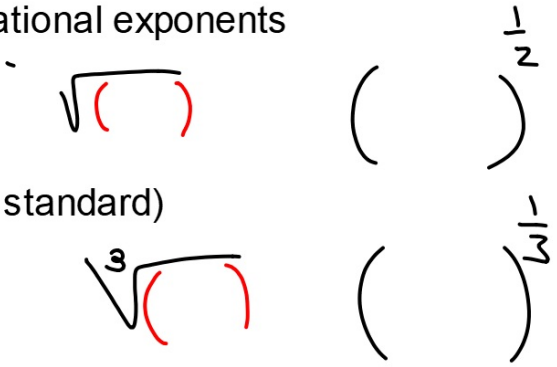
square root (8th grade standard)

cube root

nth root

exponential equation

whiteboards



index

Example 2 *n*th roots

Simplify.

a. $\sqrt[3]{27} = 3$ $(27)^{\frac{1}{3}}$

$(?)^3 = 27$

b. $\sqrt[5]{32} = 2$ $(32)^{\frac{1}{5}}$

$(?)^5 = 32$

guess & check

Might be easier to see if written in radical form first...

Simplify.

a. $125^{\frac{1}{3}} = 5$

$= \sqrt[3]{125}$

$(?)^3 = 125$

b. $1296^{\frac{1}{4}} = 6$

$= \sqrt[4]{1296}$

Groups of 3...
(triplets)

Groups of 4
(quads)

GuidedPractice

3A. $27^{\frac{1}{3}} = 3$

$\sqrt[3]{27}$

$(?)^3 = 27$

3B. $256^{\frac{1}{4}} = 4$

$\sqrt[4]{256}$

$(?)^4 = 256$

$\sqrt{(xy)}$ $(xy)^{\frac{1}{2}}$

$x\sqrt{y}$ $x \cdot (y)^{\frac{1}{2}}$

$5x^{\frac{1}{4}}$ $\sqrt{}$

*2 different ways...

Example 4 Evaluate $b^{\frac{m}{n}}$ Expressions

Simplify.

a. $64^{\frac{2}{3}}$

b. $36^{\frac{3}{2}}$

*root first

GuidedPractice

4A. $27^{\frac{2}{3}}$

4B. $256^{\frac{5}{4}}$