Radical Form vs. Rational Exponent Form

Name _____

Date _____ Period _____

n^{th} roots can be expressed using rational exponents

for natural number n and integer m...

$$\sqrt[n]{t} = t^{\frac{1}{n}} \qquad \sqrt[n]{t^m} = t^{\frac{m}{n}} \qquad (\sqrt[n]{t})^m = t^{\frac{m}{n}}$$

$$\sqrt[3]{8} = 8^{\frac{1}{3}} \qquad \sqrt[5]{4^3} = 4^{\frac{3}{5}} \qquad (\sqrt[5]{4})^3 = 4^{\frac{3}{5}}$$

n^{th} roots can be expressed using rational exponents

for natural number n and integer m...

$$\sqrt[n]{t} = t^{\frac{1}{n}} \qquad \sqrt[n]{t^m} = t^{\frac{m}{n}} \qquad (\sqrt[n]{t})^m = t^{\frac{m}{n}}$$

Radical Form	Rational Exponent Form
$\sqrt[n]{t}$	$t^{\frac{1}{n}}$

n^{th} roots can be expressed using rational exponents

for natural number n and integer m...

$$\sqrt[n]{t} = t^{\frac{1}{n}} \qquad \sqrt[n]{t^m} = t^{\frac{m}{n}} \qquad (\sqrt[n]{t})^m = t^{\frac{m}{n}}$$

Radical Form

$$\sqrt[n]{t^m}$$

Rational Exponent Form

$$t^{\frac{m}{n}}$$

n^{th} roots can be expressed using rational exponents

for natural number n and integer m...

$$\sqrt[n]{t} = t^{\frac{1}{n}} \qquad \sqrt[n]{t^m} = t^{\frac{m}{n}} \qquad (\sqrt[n]{t})^m = t^{\frac{m}{n}}$$

Radical Form

$$(\sqrt[n]{t})^m$$

Rational Exponent Form

$$t^{\frac{m}{n}}$$

Change the following to Rational Exponential Form

$\sqrt[3]{8}$ $\sqrt[5]{32}$ $(\sqrt[4]{81})^{3}$ $(\sqrt[6]{12})^{13}$

Change the following to Radical Form

$16^{\frac{1}{4}}$ $27^{\frac{1}{3}}$ $10^{\frac{2}{5}}$ $16^{\frac{3}{2}}$