Simplify each.

1. $\sqrt[4]{96}$

2. $\sqrt[3]{4^5}$

3. $\sqrt[5]{(-2)^8}$

4. $\sqrt[6]{3^7}$

Rational Exponents

A rational exponent is when the power on a number (or variable) is in the form $\frac{m}{n}$

For example:

$8^{\frac{1}{3}}$ $x^{\frac{5}{4}}$

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

* A rational exponent is the inverse of a radical expression.

$$x^{\frac{m}{n}} = \sqrt[n]{x^m} = (\sqrt[n]{x})^m$$

Write each rational exponent as a radical. Then simplify.

1. $(-3)^{\frac{4}{3}}$

2. $5^{\frac{3}{2}}$

3. $2^{\frac{6}{5}}$

4. $(-4)^{\frac{5}{4}}$

Write each radical as a rational exponent.

$\sqrt[5]{32}$

$\sqrt[6]{(2)^7}$

$\sqrt[3]{(-4)^2}$

$(\sqrt[8]{9})^3$

Daily Practice

Rational Exponents WS

$\sqrt[3]{4^5}$

$4 \cdot 4 \cdot 4 \cdot 4 \cdot 4$

$4 \cdot 2\sqrt[3]{2} = 8\sqrt[3]{2}$