Section 10.2—Rational Exponents

What is a RATIONAL EXPONENT?

$16^{\frac{1}{2}}$ $8^{\frac{1}{3}}$

Example Rewrite as a radical expression and evaluate if possible.

$27^{\frac{1}{3}}$ $-8^{\frac{1}{3}}$

$32^{\frac{1}{5}}$ $(-9)^{\frac{1}{2}}$

$-81^{\frac{1}{4}}$ $22a^{\frac{1}{2}}$

Example

$27^{\frac{2}{3}}$ $25^{\frac{3}{2}}$

FLOWER POWER??

Example

$(-81)^{\frac{5}{4}}$

$m^{\frac{5}{4}}$

$8^{\frac{-4}{3}}$

$6a^{\frac{5}{6}}$

$(-32)^{\frac{-2}{5}}$

$(5r-2)^{\frac{5}{7}}$

Example

Rewrite as an exponential expression.

$\sqrt[8]{33}$

$\sqrt[7]{r^5}$

$\frac{8}{\sqrt[7]{n^3}}$

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

What are the EXPONENT RULES?

Zero Exponent

Negative Exponent

Power Rule

Product Rule

Quotient Rule

Example

$n^{\frac{2}{3}} \cdot n^{\frac{-1}{2}}$

$\left(8c^{\frac{4}{5}}\right)\left(-4c^{\frac{3}{2}}\right)$

$\dfrac{x^{\frac{5}{8}}}{x^{\frac{1}{2}}}$

$\left(m^{\frac{3}{2}}\right)^{\frac{2}{5}}$

$\left(3a^{\frac{1}{4}}b^{\frac{3}{2}}\right)^{4}$

$\sqrt[4]{36}$

$\sqrt[6]{27}$

$\sqrt[10]{a^2b^8}$

Summary: