U4D2 MCR3UI **Rational Exponents**

$$a^{\frac{m}{n}} =$$

Think of _____ as the _____ and ____ as the _____.

To Evaluate:

Either:

- Take the 'nth' _____ of 'a' and then raise the answer to the _____ 'm'

  OR

- Raise 'a' to the _____ 'm' and then take the 'nth' _____ of the answer

Remember all exponent laws apply when simplifying rational exponents.

Example 1: Evaluate....do not use a calculator!

a) $25^{\frac{3}{2}}$ b) $(-27)^{-\frac{1}{3}}$ c) $-9^{2.5}$ d) $4^{\frac{3}{2}} \div 16^{\frac{1}{4}}$

Example: Write using exponents, in fully simplified form.

a) $\sqrt[3]{\sqrt{2x^4}}$ b) $\left(\sqrt[3]{a^2b^4}\right)^5$