The base of a power may be a *quotient.*

- How would I define the word *quotient* using the expression shown here?

$$\left(\dfrac{5}{6}\right)^3$$

- How would I explain why this expression is a *power of a quotient?*

- How would I explain the *power of a quotient* shown here using *repeated multiplication?*

My *repeated multiplication* involves *fractions.*

- How would I explain *multiplying fractions?*

$$\left(\dfrac{5}{6}\right)^3 = \left(\dfrac{5}{6}\right) \times \left(\dfrac{5}{6}\right) \times \left(\dfrac{5}{6}\right) = \dfrac{5}{6} \times \dfrac{5}{6} \times \dfrac{5}{6}$$

- How would I explain and demonstrate writing my repeated multiplications as *powers?*

$$\left(\dfrac{5}{6}\right)^3 = \left(\dfrac{5}{6}\right) \times \left(\dfrac{5}{6}\right) \times \left(\dfrac{5}{6}\right) = \dfrac{5}{6} \times \dfrac{5}{6} \times \dfrac{5}{6}$$

- How would I use my previous solution to explain the exponent law for a *power of a quotient?*

$$\left(\frac{5}{6}\right)^3 = \left(\frac{5}{6}\right) \times \left(\frac{5}{6}\right) \times \left(\frac{5}{6}\right) = \frac{5}{6} \times \frac{5}{6} \times \frac{5}{6}$$

$$= \frac{5 \times 5 \times 5}{6 \times 6 \times 6}$$

$$= \frac{5^3}{6^3}$$

- How would I describe my expression after distributing the exponent?

$$\left(\frac{5}{6}\right)^3$$

- How would I explain and demonstrate writing this expression as a *quotient of powers?*

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

- How would I explain and demonstrate writing this expression as a *quotient of powers?*

$$\left(8 \div 5\right)^7$$

- How would I explain *evaluating* this expression using the exponent law for a *power of a quotient?*

$$\left(\frac{39}{13}\right)^3$$

- How would I explain *evaluating* this expression using the *order of operations?*

$$\left(\frac{39}{13}\right)^3$$

Exponent Law for a Power of a Quotient

Which statements do I feel confident explaining and demonstrating?
Which statements do I <u>not</u> feel confident explaining and demonstrating?

✓ I can <u>explain</u> the term quotient

✓ I can <u>explain</u> different ways to represent division

✓ I can <u>demonstrate</u> how I evaluate a power

✓ I can <u>write</u> and <u>explain</u> an expression that is a Power of a quotient

✓ I can <u>state</u> the exponent law for a Power of a quotient

✓ I can <u>compare</u> a Power of a quotient to a quotient of powers

✓ I can <u>evaluate</u> an expression using:

* The exponent law for a power of a quotient
* The order of operations