TOPIC: POWER OF A QUOTIENT RULE

Power of a Quotient Rule

◆ Use the **Power of a Quotient Rule** (a.k.a. the quotient to a power rule) to distribute an exponent to a fraction.

Name	Example	Rule	Description
Power of a Product	$(3 \cdot 4)^2 = 3 \cdot 4 \times 3 \cdot 4 = 3^2 \cdot 4^2$	$(a \cdot b)^m = a^m \cdot b^m$	***Distribute*** exponent to each factor in parentheses
Power of a Quotient	$\left(\frac{3}{4}\right)^2 =$	$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$	***Distribute*** exponent to _____ AND _____

EXAMPLE Use the power of a quotient rule to evaluate or simplify each exponential expression.

(***A***) $\left(\frac{p}{2}\right)^4$

(***B***) $\left(\frac{-2}{5}\right)^3$

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PRACTICE Simplify the expressions using the quotient to a power property.

(***A***) $\left(\frac{p}{q}\right)^7$

(***B***) $\left(\frac{8}{11}\right)^2$

(***C***) $\left(\frac{a}{-3}\right)^4$

PRACTICE Simplify.

(***A***) $\left(\frac{x}{4y}\right)^3$

(***B***) $\left(\frac{y^4}{5}\right)^3$

(***C***) $\left(\frac{3x^4}{y^2}\right)$