

8.2: Apply Exponent Properties Involving Quotients

Goals: *Divide expressions with the same base and having exponents

*Raise a quotient to a power

1)

2)

Write out the following as a quotient:

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

Can you come up with a rule for dividing expressions with the same base raised to a power?

Simplify the following expressions. Write the answer using an exponent.

Ex: $\frac{4^7}{4^2}$

Ex: $\frac{8^{10}}{8^4}$

Ex: $\frac{5^4 \cdot 5^8}{5^7}$

Ex: $\frac{(-3)^9}{(-3)^3}$

Ex: $\frac{1}{x^4} \cdot x^6$

Ex: $\frac{9^{12}}{9^5}$

Ex: $\frac{(-2)^4}{(-2)^3}$

Ex: $\frac{6^3 \cdot 6^4}{6^2}$

Ex: $\frac{1}{r^5} \cdot r^8$

Write the following out as a product:

$$\left(\frac{a}{b}\right)^4 =$$

Can you come up with a rule to simplify a quotient being raised to a power?

Use the rule you came up with to simplify the following expressions.

$$\text{Ex: } \left(\frac{3}{2}\right)^7$$

$$\text{Ex: } \left(\frac{x}{y}\right)^3$$

$$\text{Ex: } \left(\frac{-7}{x}\right)^2$$

$$\text{Ex: } \left(\frac{c}{d}\right)^6$$

$$\text{Ex: } \left(\frac{-2}{y}\right)^4$$

$$\text{Ex: } \left(\frac{4x^2}{5y}\right)^3$$

$$\text{Ex: } \left(\frac{a^2}{b}\right)^5$$