Algebra I
Notes 10.2 Property of Exponents in Rational Expressions

Objective: Use the Quotient-of-Powers Property and the Power-of-a-Quotient Property to simplify rational expressions.

QUOTIENT-OF-POWERS PROPERTY

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

Examples:

1. $\frac{7^5}{7^2} =$

2. $\frac{2^6}{2^2} =$

3. $\frac{a^8}{a^5} =$

4. $\frac{b^{11}}{b^6} =$

5. $\frac{a^4b^{10}}{a^3b^7} =$

6. $\frac{x^5 \cdot x^2}{x^3} =$

7. $\frac{8x^8y^6}{2xy^2} =$

8. $\frac{21a^2b^9c^2}{7a^2bc} =$

POWER-OF-A-QUOTIENT PROPERTY

$$\left(\frac{x}{y}\right)^m =$$

Examples:

1. $\left(\frac{a}{b}\right)^2 =$

2. $\left(\frac{ab}{c}\right)^3 =$

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

4. $\left(\frac{1}{2c}\right)^3 =$

5. $\left(\frac{a^2}{b}\right)^5 =$

6. $\left(\frac{2^n}{d^3}\right)^4 =$

7. $\left(\frac{3a^2b}{7cd^3}\right)^3 =$

8. $\left(\frac{8x^3y^2}{2xy}\right)^6 =$

$=$

Product of Powers Property: $b^m \cdot b^n =$

$x^2 \cdot x^4 =$

$y^3 \cdot y^5 =$

Power of a Power Property: $(b^m)^n =$

$(x^4)^3 =$

$(y^2)^5 =$

Power of a Product Property: $(ab)^m =$

$(xy)^3 =$

$(a^{12}b)^2 =$

Quotient of Powers Property: $\frac{b^m}{b^n} =$

$\frac{x^5}{x^2} =$

$\frac{a^3b^4}{a^2b} =$

Power of a Quotient Property: $\left(\frac{a}{b}\right)^m =$

$\left(\frac{x}{y}\right)^3 =$

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