10.3

Quotient of Powers Property

8-2 Exponent Properties with Quotients

Example 1

$$\frac{x^5}{x^3}$$

Example 2

$$\frac{n^7}{n^3}$$

The Quotient of Powers Property:

_____base & _____ the exponents.

Practice

Simplify

1) $\frac{x^9}{x^5}$

2) $\frac{x^8}{x^3}$

3) $\frac{x^{16}}{x^9}$

4) $\frac{x^{17}}{x^8}$

5) $\frac{8^{10}}{8^4}$

6) $\frac{4^7}{4^6}$

Practice

Simplify

7) $\frac{x^{24}}{x^{16}}$

8) $\frac{1}{(-5)^4} \bullet (-5)^{11}$

9) $\frac{x^3 y}{x^2}$

10) $\dfrac{3^4 \bullet 3^2}{3^3}$

11) $\dfrac{5^6 \bullet 5^2}{5^4}$

12) $\dfrac{\boldsymbol{z}^6}{\boldsymbol{z}^2} \bullet \dfrac{\boldsymbol{z}^8}{\boldsymbol{z}^5}$

13) $\dfrac{\boldsymbol{a}^{10}}{\boldsymbol{a}^6} \bullet \dfrac{\boldsymbol{a}^7}{\boldsymbol{a}^4}$

14) $\dfrac{\boldsymbol{d}^5}{\boldsymbol{d}} \bullet \dfrac{\boldsymbol{d}^9}{\boldsymbol{d}^8}$

15) $\dfrac{2^{15}}{2^3 \bullet 2^5}$

Solve for the missing exponent...

16) $\dfrac{12^9}{12^{\boldsymbol{?}}} = 12^5$