

10.3

Quotient of Powers Property

Today's Learning Goals:

- Divide powers with the same base.
- Simplify expressions involving the quotient of powers.

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

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

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

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

$$10) \frac{3^4 \cdot 3^2}{3^3}$$

$$11) \frac{5^6 \cdot 5^2}{5^4}$$

$$12) \frac{z^6}{z^2} \cdot \frac{z^8}{z^5}$$

$$13) \frac{a^{10}}{a^6} \cdot \frac{a^7}{a^4}$$

$$14) \frac{d^5}{d} \cdot \frac{d^9}{d^8}$$

$$15) \frac{2^{15}}{2^3 \cdot 2^5}$$

Solve for the missing exponent...

$$16) \quad \frac{12^9}{12^?} = 12^5$$