

Unit 6 Day 3

Quotient Properties of Exponents (Part I)

Expand each of the following. Write the final simplified form in the right column. Can you come up with the rule?!

Question	Expansion	Simplified Answer
$\frac{x^4}{x^2}$	$\frac{\cancel{x} \cdot \cancel{x} \cdot x \cdot x}{\cancel{x} \cdot \cancel{x}} = x^2$	x^2
$\frac{w^5}{w}$	$\frac{w \cdot w \cdot w \cdot w \cdot w}{w} = w^4$	w^4
$\frac{y^2}{y^4}$	$\frac{y \cdot y}{y \cdot y \cdot y \cdot y} = \frac{1}{y \cdot y} = \frac{1}{y^2}$	$\frac{1}{y^2}$
$\frac{2^3}{2^2}$	$\frac{2 \cdot 2 \cdot 2}{2 \cdot 2} = 2$	2^1
So... What's the general rule?!	$\frac{x^m}{x^n} = x^{m-n}$	* Go back & fill in foldable*

Let's practice! Simplify the expression. Write your answer using only positive exponents.

$$1. \frac{4^7}{4^4} = 4^{7-4} = 4^3 = \boxed{64}$$

$$2. \frac{(-3)^6}{(-3)^3} = (-3)^{6-3} = (-3)^3 = \boxed{-27}$$

$$3. \frac{x^7}{x^3} = \boxed{x^4}$$

$$4. \frac{m^5}{m^{10}} = \boxed{\frac{1}{m^5}}$$

$$5. \frac{x^7 y^5}{x^2 y^5} = x^5 \cdot y^0 = \boxed{x^5}$$

$$6. \frac{2x^3}{4x^2} = \frac{1x^2}{2} = \boxed{\frac{x^2}{2}}$$

$$7. \frac{16f^3}{6f^{12}} = \boxed{\frac{8}{3f^9}}$$

$$8. \frac{y^2 \cdot y^5}{y^3} = \frac{y^7}{y^3} = \boxed{y^4}$$

$$9. \frac{24x^5 y^{17}}{-32yx^8}$$

$$\boxed{\frac{3y^{16}}{-4x^3}}$$