Name:_____

Date:_____Pd:_____

Discovering the Quotient Rule

Write the following in (1) expanded form and then (2) rewrite your answer in exponent form. What pattern do you notice?

Problem	Expanded Form	Exponent Form
$\frac{2^6}{2^3}$	$\frac{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}{2 \cdot 2 \cdot 2}$	$2^{\square}$
$\frac{7^4}{7^3}$		
$\frac{x^8}{x^2}$		
$\frac{y^5}{y^3}$		
$\frac{y^{10}}{y^5}$		

1. Without expanding, what is $\frac{x^{40}}{x^{10}}$ in simplest exponent form? _____

2. What did you do with the EXPONENTS in the above problem? _____

Now try these and see if you can find the pattern.

Problem	Expanded Form	Exponent Form
$\frac{4x^5}{2x^3}$	$\frac{4 \cdot x \cdot x \cdot x \cdot x \cdot x}{2 \cdot x \cdot x \cdot x}$	$\square x^{\square}$
$\frac{70x^4}{10x^3}$		
$\frac{8x^8}{2x^2}$		
$\frac{-3y^{10}}{1y^5}$		

3. Without expanding, how could you write $\frac{18x^{50}}{3x^{20}}$ in simplest exponent form? _____

4. What did you do with the EXPONENTS in the above problem? _____

5. What did you do with the COEFFICIENTS in problem 3?_____