Laws of Exponents Activity (Assigned after lesson 1.5)

Recall that when we raise a base to a negative exponent, we can convert it to an equivalent expression that contains a positive exponent.

For any positive number *y,* and for any positive integer *n*, we define

$$y^{-n} = \frac{1}{y^n}$$

Checking Other Students' Work

For this activity, we will check other students' work. Unfortunately, these students are struggling to keep all of their rules for exponents straight. You are to…

- look over each students work
- find their mistake
- correct the step at which they made the mistake
- finish the problem showing all the correct work

Look at the examples below.

Problem #1	Correction #1	Problem #2	Correction #2
$5^8 \cdot 7^2 \cdot 5^4$		$2^5 \cdot 4^2$	
$5^8 \cdot 5^4 \cdot 7^2$		8^{5+2}	
~~$5^{8\times4} \cdot 7^2$~~ →	$5^{8+4} \cdot 7^2$	8^7	
~~$5^{32} \cdot 7^2$~~	$5^{12} \cdot 7^2$		

Problem #3	Correction #3	Problem #4	Correction #4
$6^4 \cdot 4^8 \cdot 4^3 \cdot 6^{12}$ $6^4 \cdot 6^{12} \cdot 4^8 \cdot 4^3$ $36^{4+12} \cdot 16^{8+3}$ $36^{16} \cdot 16^{11}$		$9^{12} \div 9^3$ $9^{12\div 3}$ 9^4	
Problem #5	Correction #5	Problem #6	Correction #6
$\left(14^8\right)^5$ 14^{8+5} 14^{13}		$\left(1.3^5 \times 1.3^2\right)^0$ $\left(1.3^{5+2}\right)^0$ $\left(1.3^7\right)^0$ $1.3^{7\times 0}$ 13^0 0	
Problem #7	Correction #7	Problem #8	Correction #8
2^{-3} $\frac{1}{2^3}$ $\frac{1}{6}$		3^{-4} $(-3)^4$ $(-3)\cdot(-3)\cdot(-3)\cdot(-3)$ 81	
Problem #9	Correction #9	Problem #10	Correction #10
$\frac{2^{17} \times 2^{-5}}{2^6}$ $\frac{2^{17+(-5)}}{2^6}$ $\frac{2^{12}}{2^6}$ $2^{12\div 6}$ 2^2 4		$\frac{3^8 \times 4^3}{4^5 \times 3^5}$ $\frac{3^8 \times 4^3}{3^5 \times 4^5}$ $3^{8-5} \times 4^{3-5}$ $3^3 \times 4^{-2}$ $27 \times (-16)$ -432	