Exponent Stations

Station 1: Ordering Scientific Notation

Write each of the following numbers in scientific notation. Then, organize them in value order, from least to greatest.

$32.8 \cdot 10^8$

$4.7 \cdot 10^{-3}$

$8.34 \cdot 10^{-2}$

$83.4 \cdot 10^{-4}$

$512.9 \cdot 10^6$

$0.93 \cdot 10^{-4}$

$0.026 \cdot 10^5$

$7.5 \cdot 10^3$

Station 1 Worksheet:

Original Number	Standard Notation	Scientific Notation	Value Order

Station 2: Exponent Operations
Use any combination of the exponential expressions below to demonstrate each of the
PRODUCT and QUOTIENT laws of exponents. Create and simplify at least 10 problems.

x^2	y^3	x^5	$3x^{-4}$	$6y^{-4}$
y^4	$2y^3$	$4x^6$	$(x^3)^4$	$12x^4$
x^{-6}	y^{-7}	$(y^{-2})^{-3}$		

Station 2 Worksheet:

	Problem	Simplify	Which Law?
1.			
2			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			

Station 3: Show or Explain!

1. Which is greater, $2.3 \cdot 10^{32}$ or $3.2 \cdot 10^{23}$? EXPLAIN!

2. For the following two expressions, have a be a positive number and b and c be positive integers:

      a. SHOW that $(a^b)^{-c} = a^{-bc}$

      b. SHOW that $(a^{-b})^c = a^{-bc}$

3. Suppose that y is a positive integer:

      a. Explain what x^y means.

      b. Explain how x^y relates to x^{-y}

Station 3 Answer Sheet:

1.	Answer:	Explanation:
2.a.	Show your work:	
2.b.	Show your work:	
3.a.	Explain:	
3.b.	Explain:	

Station 4: Comparing Functions

Complete the table of values to compare the expressions: $x, 3x, 3^x, x^3$

Value of x =		0	1	2	3	4	5
Function 1	x						
Function 2	$3x$						
Function 3	3^x						
Function 4	x^3						

1. As x increases in value from 0 to 5, which expression's values increase most quickly?

2. For the function of 3^x, how do you get from one value to the next?

3. Use your table of values to graph the points for each function, on one set of axes. Use a different color for each function.

y

x