Name _____ Date _____

Powers of 10 Math 8

Power of Ten	Standard Form	What do you see?
10^7	10,000,000.	0's increase
10^6	1,000,000.	as you go up
10^5	100,000.	the chart
10^4	10,000.	0's decrease
10^3	1,000.	as you go
10^2	100.	down the chart
10^1	10.	Each time we
10^0	1.	increase the
10^{-1}	$\frac{1}{10} = 0.1$	exponent by 1,
10^{-2}	$= 0.01$	the standard form
10^{-3}	$= 0.001$	(S.F.) is multiplied
10^{-4}	$= 0.0001$	by 10.
10^{-5}	$= 0.00001$	Similarly, when we
10^{-6}	$= 0.000001$	decrease the exponent
10^{-7}	$= 0.0000001$	S.F. is divided by 10

×10 ×10

As we increase exponent by 1, decimal moves to right

As we decrease exponent by 1, decimal moves to left

Name _____ Date ____ Module 1

Lesson ~~4~~ 5 day 1

Exponential Notation- scientific notation

Scientific Notation: A way of writing very large or very small #'s. It is always the product of a # between 1 and 9.9 and a power of 10.

Ex. 7.3×10^4

2.89×10^{-5}

Write the following in scientific notation:

1. ~~6,0000~~ 60,000 = 6.0×10^4
2. 450,000,000 = 4.5×10^8
3. 804,000,000,000 = 8.04×10^{11}
4. 1,234,500 = 1.2345×10^6
5. 3,060,400,000,000,000 = 3.0604×10^{15}

Make up one of your own:

3,134,000. = 3.134×10^6

STEPS:

① Move the decimal so that the # is between 1 and 9.9.
② Write a mult. sign
③ Write a power of 10.
④ The exponent is the # of spaces you move the decimal in (1)
⑤ Be sure to include all significant digits.

What is different about the problems below?? decimals

1. 0.00056 = 5.6×10^{-4}
2. 0.00000045 = 4.5×10^{-7}
3. 0.0000026 = 2.6×10^{-6}
4. 0.0123 = 1.23×10^{-2}
5. 0.000036 = 3.6×10^{-5}

exponent will be negative

12 thousandth = .0012

over

Standard Form

10^{8}

The exponent represents the number of places the decimal point moved.

x: 175,000,000 =

The decimal is aft
the first number.

0^{-9}

x: .0000000037 = nent means zeroes are to the left.

x: $(5 \times 10^{6})(9 \times 1)^{29}$

45×10

Notation

Sci