
ASTR 220 Spring 2017
Scientific Notation Activity - Starter

Name: _____

Section: _____

Try to figure out the answers to these ON YOUR OWN as much as possible. This is meant to be a review - it won't help YOU review if YOU aren't the one doing it!

The numbers in the table below are written in both decimal notation and scientific notation.

Decimal	Scientific
1	1×10^0
10	1×10^1
100	1×10^2
1000	1×10^3
1,000,000,000	1×10^9

If you had to explain to someone how to change the numbers in the left column (decimal) into those in the right column (scientific), what would you tell that person to do? **Explain.**

Let's try another set of numbers. The numbers in the table below are written in both decimal notation and scientific notation.

Decimal	Scientific
2	2×10^0
3.4	3.4×10^0
56.7	5.67×10^1
400.0	4.000×10^2
890.1	8.901×10^2
2345678.901	2.345678901×10^6

If you had to explain to someone how to change the numbers in the left column (decimal) into those in the right column (scientific), what would you tell that person to do? **Explain.** (You may assume this person read your previous answer.)

Decimal	Scientific
1	1×10^0
0.1	1×10^{-1}
0.01	1×10^{-2}
0.001	1×10^{-3}
0.00000001	1×10^{-8}

If you had to explain to someone how to change the numbers in the left column (decimal) into those in the right column (scientific), what would you tell that person to do? Be sure to note differences from the previous procedures and what you do here.

With the set of numbers below, your procedure will have to become more exact.

Decimal	Scientific
0.17	1.7×10^{-1}
0.034	3.4×10^{-2}
0.000051	5.1×10^{-5}
0.000000000000068	6.8×10^{-14}

If you had to explain to someone how to change the numbers in the left column (decimal) into those in the right column (scientific), what would you tell that person to do? Assume this person has read your previous answers, so be sure to note differences from the previous procedures and what you do here.

In this last table, how does the negative sign affect the change of a decimal number to a scientific notation number?

Decimal	Scientific
-8.09	-8.09×10^0
-1800	-1.8×10^3
-319472	-3.19472×10^5
-0.00056	-5.6×10^{-4}
-0.0789	-7.89×10^{-2}

If you had to explain to someone how to change the numbers in the left column (decimal) into those in the right column (scientific), what would you tell that person to do? Be clear about when the negative sign should or should not go on the coefficient and/or the exponent.

One or more of the numbers in the table below is/are incorrectly converted into scientific notation. Which one(s) is/are incorrect? What should it/they be?

Decimal	Scientific	Correct? (Y/N)	Correction (if needed)
-4040	-4.04×10^3		
-525000	-5.25×10^{-5}		
2,840,000	2.84×10^6		
3.17	3.17×10^0		
81.9	8.19×10^2		
-3.53	3.53×10^{-1}		
0.00713	7.13×10^{-2}		
-0.000235	-2.35×10^{-4}		

There is a shortcut for entering numbers in scientific notation into your calculator using the “E” or “EE” button. If you don’t know it, ask your TA.