

Name: _____

Scientific Notation Calculator Lab and Review

8.EE.A.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). *Interpret scientific notation that has been generated by technology.*

Activity: You can use a calculator to perform operations with numbers written in scientific notation.

I. Complete the table according to the headings in each column:

A. Problem	Calculator Answer:	Scientific Notation
1. $(5.38 \times 10^{12})(2.2 \times 10^8)$		
2. $(1.308 \times 10^{-9})(9.24 \times 10^{-7})$		
3. $(4.8 \times 10^{22}) \div (9.4 \times 10^9)$		
4. $(2.452 \times 10^{-9}) \div (6.49 \times 10^5)$		

5. The star of Betelgeuse, in the constellation of Orion, is approximately 3.36×10^{15} miles from Earth. This is approximately 1.24×10^6 times as far as Pluto's minimum distance from Earth. What is Pluto's approximate minimum distance from Earth? Round to the nearest hundredth, and write your answer in scientific notation.

6. If 459 billion telephone calls were placed by 135 million United States telephone subscribers, what was the average number of calls placed per subscriber? Write your answer in scientific notation.

II. Estimate

A. In 1723, the population of New York City was approximately 7,248. By 1870, almost 150 years later, the population had grown to 942,292. We want to determine approximately how many times greater the population was in 1870, compared to 1723. (Round to greatest place value)

B. Let's compare the population of New York City to the population of New York. The population of New York City is 8,336,697. The population of New York State is 19,570,261. **About** how many times greater is the population of New York State? (Round to greatest place value)

II. Standard Notation, Scientific Notation, Calculator Notation - **no calculator**

Standard Notation	Scientific Notation	Calculator Notation
1. 801,200,000		
2.	4.23×10^8	
3.		6.743E8
4.		2.47E-8
5.	3.405×10^{-8}	
6. 0.000000000135		
7. 4.3		

IV. Operations in Scientific Notation Review

1. $(5.9 \times 10^{13})(4 \times 10^4) =$

2. $6 \times 10^{14} \div 2 \times 10^2$

3. $1.6 \times 10^5 + 9.65 \times 10^6$

4. $6.8 \times 10^9 - 2.2 \times 10^8$

5. $(2.74 \times 10^{19})(3.2 \times 10^{-5}) = 8.768E14 =$ _____

6. $\frac{5.82 \times 10^{-11}}{8.96 \times 10^{11}} = 6.5E-23 =$ _____

7. $(4.5 \times 10^{12})(3.7 \times 10^8) = 1.665 \times 10^{21} =$ _____

8. The total area of Rhode Island is about 1.8×10^5 square miles. The total area of Georgia is about 5.7×10^4 square miles. The total area of Georgia is about how many times the total area of Rhode Island?

9. The total area of Kansas that is covered by water is about 5×10^2 square miles. The total area of Alaska that is covered by water is about 9.5×10^4 square miles. The total water area of Alaska is about how many times the total water area of Kansas?