

**Grade 6 Gifted
Day 3**

Standards	8.EE1.4 Apply the concepts of decimal and scientific notation to solve real-world and mathematical problems. a. Multiply and divide numbers expressed in both decimal and scientific notation.
Learning Targets I Can Statements	I can multiply and divide numbers in decimal and scientific notation.
Essential Question(s)	How can I apply scientific notation in the world around me?
Resources	No additional resources needed. However, all answers should be written on a separate sheet of paper.
Learning Activities or Experiences	<ol style="list-style-type: none">1. Complete at least 3 topics of your ALEKS pathway. (if available)2. Review attached notes and complete the practice problems.3. Complete the "Today's Thought" activity.


NOTE: For additional practice aligned to your grade for SC READY review please refer to the 6th grade level assignments.

Lesson Notes

This mini lesson will allow you to apply those concepts learned with "Laws of Exponents." Review the examples below.

Multiplying in Scientific Notation


- Multiply the coefficients
- Use properties of exponents to multiply the power of 10
- Simplify


$$\begin{array}{r} 4 \times 10^3 \cdot 3 \times 10^4 \\ \hline 12 \times 10^7 \\ \hline 1.2 \times 10^8 \end{array}$$

Remember, your coefficient must be greater than or equal to 1, and less than 10

Dividing in Scientific Notation

- Divide the coefficients
- Use properties of exponents to divide the power of 10
- Simplify


$$\begin{array}{r} 2 \times 10^7 \div 4 \times 10^4 \\ \hline .5 \times 10^3 \\ \hline 5 \times 10^2 \end{array}$$

Remember, your coefficient must be greater than or equal to 1, and less than 10

Your final answer should always be in scientific notation. A **number** is written in **scientific notation** when the coefficient **number** is between 1 and 10 and it is multiplied by a power of 10. Identify from the list below which numbers are in scientific notation.

- 3.2×10^{-3}
- 11.3×10^2
- 0.33×10^{-5}
- 7×10^0

Today's Thought

- Which equation is true?
 - $(6 \times 10^2) \cdot (1.5 \times 10^{-4}) = 9 \times 10^{-8}$
 - $(6 \times 10^2) \cdot (1.5 \times 10^{-4}) = 4 \times 10^6$
 - $(6 \times 10^{-2}) \cdot (1.5 \times 10^4) = 9 \times 10^{-8}$
 - $(6 \times 10^{-2}) \cdot (1.5 \times 10^4) = 4 \times 10^2$
- Which is equivalent to the product of 6×10^{-9} and 3×10^{17} ?
 - 1.8×10^{-1}
 - 1.8×10^{-63}
 - 9×10^{-2}
 - 9×10^{-63}
- A TV provider had 2.982×10^7 subscribers at the beginning of 2015. At the end of the year, the TV provider had 1.235×10^5 subscribers. *Approximately* how many more subscribers did the TV provider have at the beginning of 2015 than at the end?
 - 2.29×10^0 subscribers
 - 2.29×10^1 subscribers
 - 2.29×10^2 subscribers
 - 2.29×10^3 subscribers
- Ivan's work while simplifying $(0.00085)(1.2 \times 10^9)$ is shown.

Step	Work
Given	$(0.00085)(1.2 \times 10^9)$
Step 1	$(8.5 \times 10^{-4})(1.2 \times 10^9)$
Step 2	$(8.5 \times 1.2) \times (10^{9-4})$
Step 3	10.2×10^5
Step 4	1.02×10^4

In which step is Ivan's work incorrect, and why?

- In Step 1, 8.5×10^{-4} should be 8.5×10^4 .
 - In Step 2, 10^{9-4} should be $10^{9(-4)}$.
 - In Step 3, 10.2 should be 9.7.
 - In Step 4, 1.02×10^4 should be 1.02×10^6
5. A certain cell is 1.7×10^{-6} meters in diameter. When viewed under a microscope lens, the size of the cell is multiplied by 1,000.

The size of the diameter of the cell when viewed under the microscope can be written as 1.7×10^x meters. What is the value of x ? _____