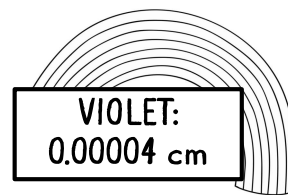


SCIENTIFIC NOTATION

In a science lab, Dominic's instructor wrote the wavelength for violet light on the board as shown at the right.



- Is the wavelength for violet light a large or small value, and how do you know?
- How would you read the value using correct place value? What makes it difficult?

Scientific notation is a shorthand way of writing really _____ or really _____ numbers.

SCIENTIFIC NOTATION

Scientific notation is written as a _____ of two numbers:

- The first number must be between _____ and _____
- The second number must be a _____ of 10

In A and B, rewrite the value in scientific notation using the steps described in the table at the right.

A STANDARD: 6,980,000

SCIENTIFIC: _____

B STANDARD: 0.000000083

SCIENTIFIC: _____

STEPS TO CONVERT STANDARD TO SCIENTIFIC

- Create a number between _____ and _____ by moving the decimal.
- Count the number of times that you moved the decimal. This number will be your _____ of 10.
- If the original value was greater than one, the exponent will be _____.
- If your original value was less than one (like a decimal), the exponent will be _____.

In 1-4, convert each given value to scientific notation.

1. 1,850,000 _____	2. 42,000 _____
3. 0.007826 _____	4. 0.000012 _____
5. Express the wavelength for violet light using scientific notation. _____	

Values represented in scientific notation can also be rewritten in standard notation.

STEPS TO CONVERT SCIENTIFIC TO STANDARD

- Move the decimal the same number of places as the _____.
- If the exponent is **positive**, move the decimal to the _____ in order to make the number _____.
(Add zeros as placeholders if necessary.)
- If the exponent is **negative**, move the decimal to the _____ in order to make the number _____.
(Add zeros as placeholders if necessary.)

In A and B, rewrite the value in standard notation using the steps described in the table at the left.

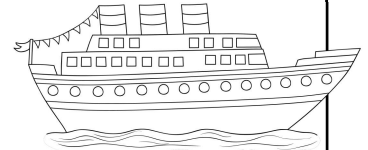
A	SCIENTIFIC: 4.25×10^6
	STANDARD: _____

B	SCIENTIFIC: 5.138×10^{-5}
	STANDARD : _____

In 6-9, convert each given value to standard form.

6. 7.83×10^7 _____	7. 2.5×10^4 _____
8. 8.345×10^{-6} _____	9. 3×10^{-3} _____

10. Raul is aboard a cruise ship that weighs approximately 5.5×10^7 pounds, while Veronica is aboard a cruise ship that weighs approximately 60,000,000 pounds. Whose cruise ship weighs more, and how much heavier is the ship?



11. Mr. Sanchez asked his students to write a value in scientific notation that was between 0.007 and 0.008. Natalie wrote the value shown. Did she complete the task correctly? Explain.

7.5×10^{-3}

12. Complete the table by rewriting each given value in the missing notation.

STANDARD NOTATION	SCIENTIFIC NOTATION
5,820,000	
	4.25×10^5
0.0015	
	6.257×10^{-7}