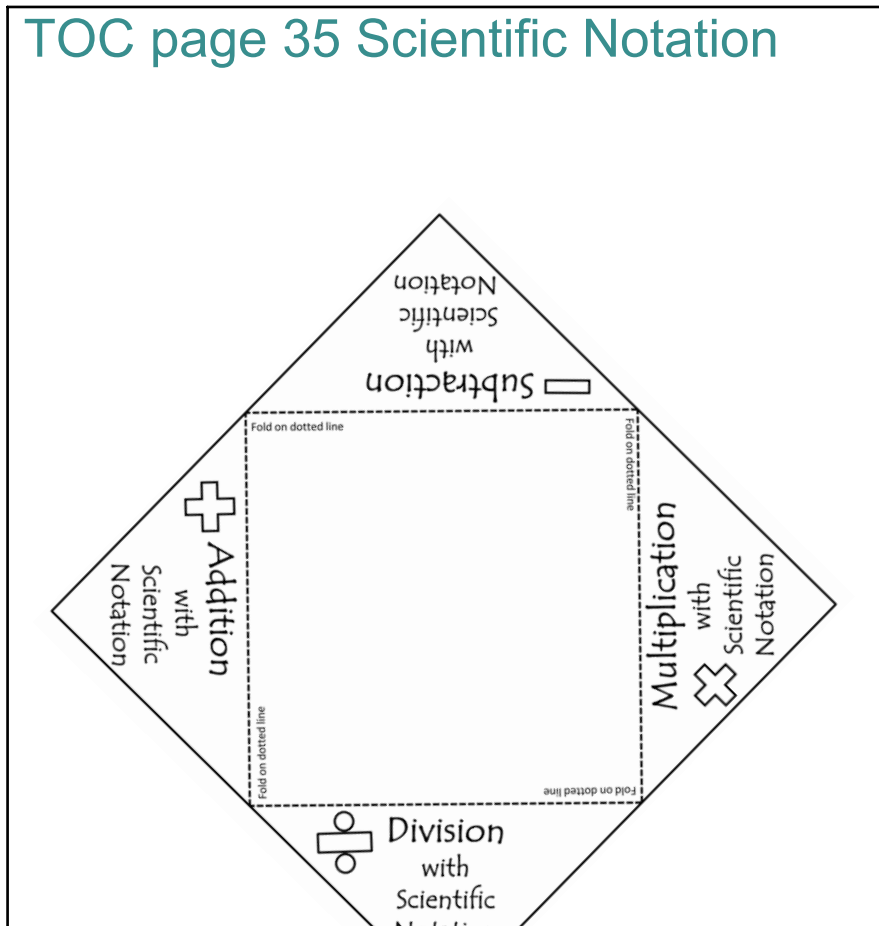


# TOC page 35 Scientific Notation



Sep 13-2:40 PM

Page 35

**Decimal  $\rightarrow$  Scientific**  
 move decimal to make number in the ones place greater than or equal to 1 but less than 10.  
 \*Start as a whole  
 # = Positive exponent

**Scientific  $\rightarrow$  Decimal**  
 Positive Exponent: move decimal to the right. Negative Exponent: move decimal to the left  
 \*Think of a # line

\*Start as a decimal = negative exponent.

ex:  $2,400,000$   
 $2.4 \times 10^6$

ex:  $.000002$   
 $2 \times 10^{-6}$

ex:  $-5.8 \times 10^6$   
 $-58,000,000$   
 $5,800,000$

ex:  $1.35 \times 10^{-4}$   
 $.000135$

Sep 13-6:37 PM

Addition

1. Make sure that exponents of both numbers are the same.
2. Add decimals, don't forget to line up the decimal points. Keep exponents the same.
3. Make sure you have one digit (nonzero) in front of the decimal.

Ex:  $(9.7 \times 10^6) + (5.4 \times 10^4)$

Step 1:  $9.7 \times 10^{6-2} = 970 \times 10^4$

Step 2:

$$\begin{array}{r} 970.0 \\ + 5.4 \\ \hline 975.4 \end{array} \times 10^4$$

Step 3:  $9.754 \times 10^6$

Sep 14-10:39 AM

Subtraction

1. Make sure that exponents of both numbers are the same.
2. Subtract decimals, don't forget to line up the decimal points. Keep exponents the same.
3. Make sure you have one digit (non-zero) in front of the decimal.

Example:  $(1.7 \times 10^8) - (7.2 \times 10^7)$

Step 1:  $1.7 \times 10^{8-1} = 17 \times 10^7$

Step 2:

$$\begin{array}{r} 17.0 \\ - 7.2 \\ \hline 9.8 \end{array} \times 10^7$$

Step 3:  $9.8 \times 10^7$

Sep 15-8:01 AM

*Multiplication*

1. Multiply the decimal numbers.
2. Add exponents
3. Make sure you have one digit (non-zero) in front of the decimal.

Example:  $(3.7 \times 10^6) (6.2 \times 10^4)$

Step 1:  $3.7 \times 6.2 = 22.94$

Step 2:  $6 + 4 = 10$

Step 3:  $22.94 \times 10^{10}$   
 $2.294 \times 10^{11}$

Sep 15-8:02 AM

*Division*

1. Divide the decimal numbers.
2. Subtract Exponents
3. Make sure you have one digit (non-zero) in front of the decimal.

Example:  $(1.2 \times 10^8) \div (2.4 \times 10^3)$

Step 1:  $1.2 \div 2.4 = 0.5$

Step 2:  $8 - 3 = 5$

Step 3:  $0.5 \times 10^5$   
 $5 \times 10^4$

Sep 15-8:02 AM

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