

Section 3A

Practice

1) Write each of the following values in scientific notation.

a) 405000	b) 0.000000552	c) 18400
d) 82310000000000000000	e) 0.0000000000000000000090064	

2) Write each of the following values in standard notation.

a) 4.85×10^5	b) 6.7×10^{-4}	c) 2.15×10^4
d) 8.88×10^{-8}	e) 4.55×10^7	

3) Perform the following calculations and write your answer in scientific notation.

a) $(4.50 \times 10^4) + (7.75 \times 10^3) =$	b) $(8.37 \times 10^{-3}) - (9.00 \times 10^{-5}) =$	c) $(6.88 \times 10^7) \times (3.55 \times 10^3) =$
d) $(5.22 \times 10^2) / (7.74 \times 10^5) =$	e) $(5.00 \times 10^7) - (4.05 \times 10^5) =$	f) $(8.32 \times 10^6) \times (3.44 \times 10^{-4}) =$
g) $(4.33 \times 10^{-3}) + (5.12 \times 10^{-2}) =$	h) $(8.43 \times 10^4) / (4.39 \times 10^{-5}) =$	i) $(6.02 \times 10^{23}) / (3.01 \times 10^{23}) =$
j) $(5.00 \times 10^8) \times (2.00 \times 10^{-7}) =$	k) $549 \times 430 =$	l) $5090000 - 785000 =$
m) $50/34000 =$	n) $89000 + 42300 =$	o) $0.000005 \times 450 =$

Scientific Notation: Why It's Cool!

We will be discussing the following questions in class. Write down your ideas and bring them to class.

- Why is scientific notation so helpful?
- Why are powers of ten used?
- If you could construct a system for easier use of smaller or larger numbers, what would you use?
- Why do we move a decimal place when multiplying by some power of 10?
- What does the word decimal mean?
- What does the word heximal mean?
- What does the word pentimal mean?
- Why do we use a decimal system and not a hexadecimal system?

Do not worry about mathematical definitions, just use words to describe these terms.

Your Calculator and You

When doing calculations in this class you will be using your calculator quite a bit. During this time you are going to become familiar with your calculator's ability to use scientific notation. When using scientific notation, there is a method that you should use while you have a graphing calculator. The following is an example of how this information can be placed in your calculator.

$$3.55 \times 10^5$$

1. Put 3.55 into your calculator.
2. Hit the second key located in the upper left hand corner of your calculator.
3. Hit the comma button above the 7 key. There should be a small EE above the comma.
4. Place a 5 next to the E .
5. You have now placed 355000 into your calculator.

For the following numbers put them in your calculator using the method described above. I will be walking around making sure you understand what you are putting into your calculator. Please write out how these numbers look on your calculator display.

5.23×10^7	7.88×10^{13}	6.02×10^{23}	15600000
1.76×10^{-19}	5.88×10^{-6}	9.62×10^{-8}	0.000000334

Now that you can put these values into your calculator we are going to do some simple arithmetic. Use your calculator to perform the following mathematical operations

$$\frac{4.85 \times 10^4}{(4.33 \times 10^2)(9.56 \times 10^{-3})} =$$

$$\frac{(3.63 \times 10^3)(3.57 \times 10^{-4})}{(9.67 \times 10^{-2})(4.55 \times 10^{-5})} =$$

$$\frac{(5.75 \times 10^7)(1.05 \times 10^{-4})}{4.25 \times 10^5} =$$

$$\frac{(8.25 \times 10^4)^3}{(4.21 \times 10^6)(1.98 \times 10^3)} =$$