

Homework Assignment # 2

Due Feb 3

Please complete all of this on your own paper. Do not write on this assignment sheet.

1. Definitions: All definitions on tests are expected to be opportunities for you to show how much you know about a particular term, not just that you know the terms. Therefore they will be graded with the following criteria: 3 points for correct definition (in your own words is fine), 1 point for an example of the term (could be a formula, a symbol if appropriate) and 1 point for something extra about how that term connects with what we are learning. Please complete the following definitions to meet those criteria:

- a. Scientific Theory
- b. Atom
- c. Element
- d. Law of Definite Proportions

2. Sort these numbers in order from from largest to smallest (label your list so I can follow)

4×10^{-7}	3×10^{-8}	1.5×10^{11}	1×10^{-6}
6.4×10^6	1×10^{-15}	1.5×10^{16}	9.5×10^{20}

3. Adam and his friend Molly Q. are arguing. Adam keeps insisting that atoms are filled with lots of empty space and that there is a huge distance between the electrons and the nucleus. Molly Q. keeps insisting that atoms are so tiny, they are smaller than light. Therefore there is no room for empty space. How would you resolve this argument?
4. In the following excerpt of a letter to the editor, a science student is misunderstanding the scientific method, and how science works. Using the information we talked about in class, and that is in Ch.1 of your book, how would answer the student back, to correct the misunderstandings and answer the students final question. How is science knowledge established?

“ Besides, everyone knows that scientists are just making stuff up. Just look at the news, first everyone should take calcium supplements and then they say they do more harm than good. Ever talk to a scientist? Ask them a direct question, and they will put all kinds of qualifiers in like, “according to the latest theory” or “my data suggests that”. Worse still, they can never agree. Take global warming, most scientists seem to agree it is a problem, but there are some who say it is all made up. And even the ones who think we should do something can’t tell you exactly what is going to happen if we don’t. Where is the truth? ”