## 02: PYTHON BASICS CONTINUED

**1:** How many bisections do you expect to need if the tolerance is $10^{-3}$? $10^{-6}$? $10^{-9}$? Explain your reasoning.

From running the bisection code, it seems that we need 10 iterations for 10^-3, therefore we'd need 20 and 30 iterations for the latter two.

**2:** How (aside from actually changing the function in the code) could you make `bisection.py` easier to use for different functions?

I'm kinda confused by this question but if I had to guess, I'd recommend defining the function more flexibly as a variable. Doing so, would allow you to chance the function in one centralized location, e.g. a specific line.

**3:** What are the differences between lists and tuples? Tuples and dictionaries? Sets and dictionaries? In what cases might you use each?

Lists can be changed, added to, etc. while tuples cannot be. Dictionaries define a set of relationships, while tuples are a collection of singular objects. Sets' objects don't have corresponding relationships. When having a collection of variables I'd use a dictionary to easily define each one. When considering an array I'd use a list. When doing math-type-logic I'd use a set similar to how they're used in set theory.

**4:** How would you check within an `if` statement if a variable is a list or not? Why would you need to do this?

I'd see if I could change an object by indexing the list. It's important to know the type of data structure you're working with because each structure has different functionaliteies.