Some thoughts and advice:

- You should expect to spend several hours on problem sets. A lot of practice problem-solving is essential to understand the material and skills covered in class. Be organised and do not leave problem sets until the last-minute. Instead, get a good start on the problems as soon as possible.
- When approaching a problem think about the following: *do you understand the words used to state the problem? what is the problem asking you to do? can you restate the problem in your own words? have you seen a similar problem worked out in class? is there a similar problem worked out in the textbook? what results/skills did you see in class that might be related to the problem?*

  If you are stuck for inspiration come to office hours, or send me an email. However, don't just ask for the solution - provide your thought process, the difficulties you are having, and ask a coherent question in complete English sentences.
- Form study groups - get together and work through problem sets. **This will make your life easier!** You must write your solutions *on your own* and *in your own words*.
- If you would like more practice then let me know.
- You **are not allowed** to use any additional resources. If you are concerned then please ask.

Do **not submit** solutions to the following problems. These are practice exercises that you should complete. They may appear as quiz problems.

1. 11, 12 from Section 1.7
2. 11, 42, 43, 47, 49 from Section 2.2
3. 22, 24, 29, 31 from Section 2.3

Submit solutions to the following problems on **Friday, September 28th**.

1. 7, 12, 13, 18, 36, 40 (*see Hint for 39*), 41, 44, 45, 48 in Section 2.2
2. 21, 30, 32, 40, 43, 44 in Section 2.3
3. Use the Intermediate Value Theorem to show that there is a number c with $1 \leq c \leq 2$ such that $f(c) = 0$ for $f(x) = x^4 + x - 3$. *[Remember to state why the IVT applies to this function.]*
4. For a function $f(x)$, the derivative $f'(a)$ is the instantaneous rate of change at a of f with respect to x. We will use this fact to interpret what the derivative means for a specific function:

   The number of bacteria after t hours in a controlled laboratory experiment is $n = f(t)$.

   (a) What is the meaning of the derivative $f'(5)$? What are its units?

   (b) Suppose there is an unlimited amount of space and nutrients for the bacteria. Which do you think is larger, $f'(5)$ or $f'(10)$? If the supply of nutrients is limited, would that affect your conclusion?