MATH 111 Section 01
Homework 1

Below is a list of selected problems from Swokowski and Cole's Precalculus - Functions and Graphs. I will add more to this list as the week progresses. I will no longer add problems after Friday January 18, and you will have until the following Friday January 25 to finish the problem set. The first problems are suggested exercises and you do not need to turn them in. The latter set you should write up carefully and neatly as they will be graded. It is in your best interest to work all of the problems. All problems from the homework are fair game on the exams! You are encouraged to work in groups, but you must write up your own solutions. I will be available during office hours for help.

1 Suggested Problems

§1.6) 1-47 odd

§ 2.1) 1-5 odd, 9-17 odd

§ 2.2) 1-19 odd, 23- 27 odd, 35, 47-55 odd

2 Required Problems

1) Exposure to the T-virus$^{\text{TM}}$ in small doses can have a therapeutic effect. If the concentration of the virus t hours after exposure is given by

$$c = \frac{20t}{t^2 + 4}$$

and if the largest dose that can safely be taken is 4 mg/L, determine when this level is exceeded.

2) Let ℓ denote the line segment connecting the points $P = (1, 1)$ and $Q = (7, 3)$. Find the point on ℓ that is exactly one quarter of the way from P to Q.

3) Find all points on the x-axis that are distance 5 from the point $P = (-2, 4)$.

4) A shady figure runs at you in the night and hands you the equation

$$x^2 - 4x + 6 + y^2 + 6y = 0.$$

You notice an off-puting gleam in their eye as well as the glint of a knife when they demand that you identify the graph for them. Given that this is the equation for a circle, find its center and radius.