# Main Exercises Week 11

MATH 130: Calculus I, Sections 2 and 3 Your Name (Print): _____

**Follow the general guidelines for the Main Exercises assignments (the salmon colored handout).** Be sure to **staple** together your pages if you have more than one, and include your **name** and which **section** of calculus you are in at the top. Neatness is appreciated and makes a good first impression!!!

**Due:** at the beginning of class on Friday, November 8th

**Remember:** Your write-up should be **your own**. You may discuss these problems with others, but you should be alone when you write them up, using only outlines of any group or TA discussions.

1. A plane flies horizontally at an altitude of 5km and passes directly over a tracking telescope on the ground. When the angle of elevation is $\frac{\pi}{3}$, this angle is decreasing at a rate of $\frac{\pi}{6}$ rad/min. How fast is the plane traveling at that time?

2. Find the absolute minimum and maximum values of $f$ on the interval $[-1, 1]$ if $f(x) = \ln(x^2 + x + 1)$. Be sure to show all your work and make clear that you have checked all possibilities (for example, there are two possibilities where you can have critical points; show that you have checked both).