Main Exercises Week 6

MATH 130: Calculus I, Section 4 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** at the top. Neatness is appreciated, makes a good first impression, and can earn you a bonus point!!!

Due: at the beginning of class on Friday, February 24th

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 Intern discussions. EXPLAIN and SHOW YOUR WORK!!! Final answers will not receive full credit without supportive explanations.

1. Evaluate each of the following limits. Explain your work carefully. If the limit does not exist, explain why.

(a) $\lim_{x\to-\infty} \dfrac{\arctan x}{4x^3 - 5x^2 + 7}$

(b) $\lim_{x\to\infty} \dfrac{7 - 2x^2 + 9x^5}{12x^5 + 6x^3 - 15}$

(c) $\lim_{x\to-\infty} \dfrac{6x - 7}{3x + \sqrt{36x^2 + 4x}}$

(Note: We will do one like part c in lab on Thursday, but try to figure it out before then!)

2. Determine the interval(s) on which the function $f(x) = \ln(x^2 - 9)$ is continuous. Justify your answer with full sentences, referring to Theorems where appropriate.