MATH 1634, Review for Hour Exam 3

- The exam will be on the materials covered in Sections 3.10 (Differentials) and 4.1–4.7.

- The formulae that you have to know to solve Optimization Problems are the ones in the examples done in class, in homeworks, or something very basic (such as the circumference of a circle or the volume of a box). **Make sure you know all those formulae. No excuse that you didn’t know the necessary formulae to solve an optimization problem.**

1. Use differentials to estimate the change of $f$ \( \text{§3.10} \); Refer to Quiz 6 #1 and the copy of OLD Hour Exam 2 #4.

2. Finding the critical points \( \text{§4.1} \)

3. Mean Value Theorem \( \text{§4.2} \)

4. Computing limits using l’Hospital’s Rule. Always check the condition to apply L’Hospital’s Rule. \( \text{§4.4} \)

5. Find the local maxima or minima of $f(x)$ by any method that you like. Show your work **CLEARLY** as we did in class. Give your answer in Cartesian coordinates. \( \text{§4.3} \)

6. Sketching curves. \( \text{§4.3, 4.5} \). You will be asked according to the following guideline:

   (a) Find the local maxima or minima, if exist. Show your work **CLEARLY** as we did in class. Give your answers in Cartesian coordinates.

   (b) Find the inflection points, if exist. Show your work **CLEARLY** as we did in class. Give your answers in Cartesian coordinates.

   (c) Sketch the curve. Show your work **CLEARLY** as we did in class, such as a Big Table also.

   (d) Find asymptotes if exist. Give your answer in equation(s), and draw the asymptotes in (c); Refer to Quiz 8 #2 to see a question.

7. Optimization problems. \( \text{§4.7} \)

Remind you of our class policy for the missing exam:

- Remember the policy in case you fall sick: You must write me an email BEFORE the exam – **no excuse!** If you fail to do so, there will be penalty.

- If you are late for the exam, I interpret that you do so at your own risk. There won’t be any way to make up your lost time.