

Exam 3 Study Topics – Calculus I

The third exam will be held online on Tuesday 14 April. I will post the exam on Brightspace and email a copy to you first thing in the morning. If you do not have access to a printer, you may write your answers on separate page. Then upload your exam (jpg or pdf, for example) to Brightspace by 3pm. There are 10 problems, taken from sections 4.1-4.5 and 4.7. Be prepared for the topics below.

To study, review the materials on my web site, as well as those quiz problems that appear on this list. Look through the examples from lecture that fit into one of the categories below so you can identify the type of problem.

It is not enough to just look at problems and their solutions. **You need to work problems** so you can identify and apply the correct technique.

1. Find the critical points of a function
2. Find the absolute maximum and minimum values of a function on a closed interval $[a, b]$
3. Solve an application problem involving the Mean Value Theorem
4. Find the intervals in which a function is increasing, decreasing, concave up and concave down (no sketches)
5. Evaluate indeterminate limits, either with or without l'Hospital's Rule
6. Given a list of properties of a function $f(x)$ and its derivatives $f'(x)$ and $f''(x)$, build the sign chart and use it to draw a sketch of the function
7. Draw a rough sketch of a polynomial $f(x)$ using only roots and end behavior
8. Set up and solve an optimization problem