

Math 234: Topics to review for the second midterm

The second midterm takes place on Thursday, November 12th in class. The midterm covers all topics we have had homework on since the previous exam. In short, it covers topics starting with the chain rule and ending with double integrals. It does not include triple integrals. The exam is 6 questions, each question is worth 10 points. You will not be allowed to leave until the exam is over.

Here are some topics which I recommend you study. This list of topics is *not* an exhaustive list of topics which appear on the midterm, and you are responsible for all the material mentioned above; however, I recommend reviewing these topics first.

- Know the formula for and how to use the chain rule.
- How can we use implicit differentiation to compute a derivative?
- When is a vector valued function the gradient of a scalar valued function? If it is, how can we find the scalar valued function?
- What are local max, local min, and saddle points? How can we find possible local max, local min, etc?
- Second derivative test.
- Lagrange Multipliers—maximize and minimize subject to a constraint.
- How to compute double integrals over rectangles.
- How to compute double integrals over regions of type 1 and type 2.
- If a region is both of type 1 and of type 2, how can we switch the order of integration?
- Integration in polar coordinates.