

Math 234: Topics to review for the midterm

The first midterm takes place on Thursday, October 8th in class. The midterm covers all topics we have had homework on. In short, it covers the topics up to and including linear approximations and the tangent plane. It does not include the chain rule. The exam is 7 questions, each question is worth 10 points.

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 up through tangent planes and linear approximations; however, I recommend reviewing these topics first.

- Curves and their parameterizations. In particular, given a curve, how can we parameterize it?
- Given a curve, how can we find \vec{T} , \vec{N} , \vec{B} , $\vec{\kappa}$, and κ .
- How can we graph functions of two variables?
- What is a level set? How can we draw one?
- Quadratic forms. What does it mean to be positive definite, negative definite, indefinite, positive semi-definite, negative semi-definite?
- Given a particular quadratic form, how can we complete the square to deduce what kind it is?
- Limits in two variables. What does it mean to be continuous and how does that help us compute limits? How can we see if a limit doesn't exist?
- What are partial derivatives? How can we compute them?
- Given a function $f(x, y, z)$ what does it mean to compute all second order partial derivatives?
- What is the tangent plane to a surface? How can we compute it?
- What is the linear approximation to a function?