

Exam 3 Information – Math 207 GH

Fall 2016

Exam 3 will cover the following material

- 1) From the web site:
 - Review for Exam 2, Exam 3
 - All lecture notes posted on the class's web site for Classes 1-22

- 2) From the Textbook:
 - Chapter 1: 1.1, 1.2, 1.3, 1.5, 1.6
 - Chapter 2: 2.1, 2.2, 2.3, 2.5, 2.6, 2.7, 2.8
 - Chapter 3: 3.1, 3.2, 3.3, 3.4, 3.6
 - Chapter 4: 4.1, 4.2, 4.7, 4.9
 - Appendixes: A, B, C, D, E

Students need to be prepared to **state**: Definitions such as relative and absolute extrema, least upper bound property, Intermediate Value Theorem (both versions), the definition of the derivative at a number x , the definition of continuity (both at a point and on an interval) Least Upper Bound Property of real Numbers, Intermediate Value Theorem (both forms), Rolle's Theorem, Mean Value Theorem, Second Derivative Test

Students need to be prepared to **prove**: (note that these proofs are all posted on the lecture notes)

- The limit of $\sin x/x$ as x approaches zero
- Compute derivatives as limits of the difference quotient for algebraic functions and those of $\sin x$, $\cos x$, $\ln x$
- The constant, sum, and constant multiple rules for derivatives
- If f is differentiable at a number c , then it is continuous there
- The product and quotient rule for derivatives
- If f has a relative maximum (or minimum) at $x=c$ and is differentiable there, then $f'(c)=0$
- Find the derivative for $\log_a x$, e^x and a^x
- The Intermediate Value Theorem (both versions)
- The Mean Value Theorem
- If $f'(x)=0$ for all x , then f is a constant function.