

# Exam I Study Aid

Exam I : Sections 2.1-3.2  
Friday, June 13th (In Class)

Our first in-class exam will cover all of the material we have discussed so far in class (however, you should also be familiar with the graphical interpretation and computation of limits that you learned in Math 122A). You will have the entire class period to complete the exam (you may leave once you are finished).

Below is a list of the main concepts or definitions you should definitely know and be comfortable with. (Note: this list is not a comprehensive list of all the topics we have learned in Sections 2.1 through 3.2, it is simply a list of the most important topics. Hence, as a warning, there may be topics on the exam which are not listed below – i.e., don't simply study this list and nothing else!)

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|---|---|
| 1. Limits (122A)  | 11. Second Derivative                   |
| 2. Properties of Limits (122A)                            | 12. Position/Velocity/Acceleration      |
| 3. Continuity (122A)                                      | 13. Differentiable Functions            |
| 4. Average/Instantaneous<br>Rate of Change (and Velocity) | 14. Differentiability vs. Continuity    |
| 5. Derivative at a Point                                  | 15. Derivative of Constant Multiple     |
| 6. Derivative Function                                    | 16. Derivative of Sum/Difference        |
| 7. Visualizing Average Rates of<br>Change Graphically     | 17. The Power Rule                      |
| 8. Visualizing the Derivative<br>Graphically              | 18. Derivative of Polynomials           |
| 9. Derivative of Constant/Linear/<br>Power Functions      | 19. Derivative of Exponential Functions |
| 10. Units and Derivatives                                 |   |

Finally, here is a list of good practice problems that might help you in studying. All of the problems were picked to be odd numbered so that their solutions would be found in the back of the book.

- Section 2.1 – 1, 5, 7, 15, 17, 19, 21, 25
- Section 2.2 – 1, 5, 9, 11, 13, 15, 25, 39, 43, 45, 47
- Section 2.3 – 3, 5, 7, 9, 11, 23, 29, 31, 33, 37
- Section 2.4 – 1, 3, 5, 9, 13
- Section 2.5 – 1, 3, 5, 7, 9, 11, 13
- Section 2.6 – 1, 3, 5, 9
- Section 3.1 – 1, 3, 5, 7, 9, 13, 15, 17, 19, 23, 27, 43, 45, 55, 59
- Section 3.2 – 1, 3, 5, 7, 17, 19, 21, 23, 25