

Study Guide for Test 2

The test will be [Wednesday, October 7](#), and will cover [sections 3.2 through 3.7](#), as detailed below. The test will consist of problems similar to assigned homework problems. There will be about 10 - 12 problems, one or two per section. Each problem will be worth the same; the test will be 12.5% of your grade.

Please see me if you have any questions or if you would like some help.

- 3.2 Be able to find the derivative of a function using the [definition of derivative](#). That is, find $f'(x)$ by computing

$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}.$$

No credit if I ask you to use the definition but you just use the power rule, product rule, etc. Of course, if I *don't* ask you to use the definition, find the derivative the easiest way you know how to. (This applies to any problem that you would need a derivative for, such as slope or velocity problems; unless I ask you to use the definition to find a derivative, just use the power rule, or chain rule, etc.)

- 3.3 Be able to find derivatives of functions using the power rule, product rule,
3.4 quotient rule and the chain rule. Be able to handle functions involving
3.5 trigonometric functions (you should know the derivatives of the six trig functions). I will ask you to find derivatives of functions that require more than one rule, say the chain rule and the product rule. I may ask you to simplify your answers, but if I do not, there's no need to.
- 3.6 Be able to compute implicit derivatives. Note problems where you had to find y explicitly and compare the explicit derivative with the implicit derivative (problem 1 in the book, and problem 5 on assignment 5).
- 3.7 Be able to find the rate of change of a quantity. (This is just the derivative of the quantity.) Be able to find the velocity and acceleration of a particle that moves along a line. Be able to determine when the particle changes direction, and be able to draw a diagram (similar to the one on the last page of the notes for section 3.7) showing the motion of the particle on the line.