

Preparing for Class 16

Reading: *H-H* Section 2.2, Section 1.3, pp. 20-21. Also read Section 10.3.

Problems: *H-H* Section 2.2, #3, 5, 6, 9, 11, 23, 24.

Homework Due: All problems assigned to prepare for Classes 15 and 16 are due at the start of Class 16.

Monday, October 2

Class 16:

Differentiability and Linear Approximation

If $f'(a)$ exists, then f is said to be differentiable at a . In this case, we can interpret $f'(a)$ as the slope of the line tangent to the graph of f at the point $(a, f(a))$. The graph of this line is a close approximation to the graph of f near this point. In this class we will study this approximation, including the behavior of the approximation error.

Preparing for Class 17

Reading: *H-H* pp. 136-140 *Differentiability and Linear Approximation*

Problems: *H-H* pp. 141-143, #1, 7, 11, 12, 14 .

Wednesday, October 4

Class 17:

Limits, Continuity and Differentiability

At this point you have been introduced to all of these ideas – limits, continuity and differentiability – in either class or lab. In today's class you'll see how they tie together. At the same time, we will introduce some additional properties of limits that we will need to further investigate derivatives.

Take-Home Quiz on Definition of Derivatives and Linear Approximation.

Lab 6: Limits, Derivatives and Linear Approximation

Preparing for Class 17

Reading: *H-H* pp. 127 - 133, *Limits and Continuity*. Also *H-H* p.141.

Problems: *H-H*, pp. 133-135, #1, 9, 11a), 12a)b)

Friday, October 6

Class 17:

Derivatives of Some Elementary Functions

Having built up additional tools for working with limits, and having gained a good understanding of the meaning of the derivative at a point, we will now derive the derivative at a point for some familiar elementary functions. Since this point will be chosen arbitrarily, in each case we will actually be obtaining a new function using this process. We will call this new function the derivative of the original function.

Take-Home Quiz on Due at the Start of Class.