

## **Learning Objectives**

### **Summer Calculus, 2005**

1. Recognize, define, and use functions in a variety of settings including symbolic, numerical, and graphical.
2. Translate problems given in one form into any of the others, as appropriate.
3. Define continuity and use consequences of continuity to solve problems, in particular about the behavior of functions.
4. Interpret and use the derivative in a variety of problems posed symbolically, numerically, and graphically.
5. Define and calculate the derivative symbolically, numerically, graphically, and verbally.
6. Use appropriate theorems concerning derivatives to solve problems, in particular about the behavior of graphs.
7. Use the derivative to set up and solve optimization problems.
8. Define and distinguish between the definite integral, indefinite integral, and anti-derivative of a function.
9. Recognize the role integration plays in solving differential equations. Recognize and define differential equations. Solve differential equations to find equations of motion.
10. Calculate integrals using tables, computers, and symbolic methods. Approximate definite integrals using a variety of numerical methods. Set up and solve problems using integrals.
11. Communicate mathematical results effectively.
12. Read and write appropriate symbolic mathematics.