

Practice Problems

These problems are not to be handed in, but try them first; also try the even problems if you need more practice.

- From §3-6 (pages 192–194): 37–47 odd.

The answers to these should be in the back of your textbook.

Due Problems

These problems are due December 6 Thursday.

- 1 Using the first derivative approximation around $x = 9$, find the approximate change in the following quantities; that is, use dy/dx and Δx to approximate Δy . Show what numerical calculation you make for each. (Do *not* give the exact value of the difference. You should be able to do the calculations fairly easily without a calculator.)
 - a. $y = \sqrt{x}$ as x changes from 9 to 9.3.
 - b. $y = 9/x$ as x changes from 9 to 9.02.
 - c. $y = (x - 9)^2$ as x changes from 9 to 8.85.
- 2 **Extra credit:** Use the second derivative approximation around $x = 9$ on *one* of the parts from Problem 1. Show what numerical calculation you make. Then (using a calculator) find the exact value of Δy , and state which approximation (first or second derivative) is closer.