Homework #3 — Due 4:30 pm, Tuesday, July 13

Problems are taken from the exercises in the Stewart textbook. Read through the text before working on the problems, and please make use of office hours provided by the teaching staff if you find them difficult. Submit your homework to your instructor either in lecture, at their office (380-381E), or in their math department mailbox. Late homework will not be accepted.

Problems

Write up these problems neatly and submit them by the due date above. Show your work where appropriate for full credit. If your homework solutions require multiple pages, please staple them together.

- Section 2.6: 6, 10(a)(b), 14, 20, 22, 44(a)(b)

- Section 2.7: 10, 26, 38, 44

- These additional problems

  1. Let
  $$f(x) = \begin{cases} x^2 \sin \frac{1}{x} & : & x \neq 0 \\ 0 & : & x = 0 \end{cases}$$

     Determine whether or not $f'(0)$ exists.

  2. Find the derivative of $g(x) = \sqrt{2 - 3x}$ using the limit definition of the derivative. State the domain of the function and the domain of its derivative. Find the equation of the tangent line to the curve at the point $(0, \sqrt{2})$.

Exercises

Attempt these problems, but do not submit your solutions to be graded. Quizzes and exams may include some of these problems.

- Section 2.6: 7, 13, 21, 27, 30, 31, 33, 37, 39

- Section 2.7: 3, 20, 21, 24, 28, 35, 37, 45, 50, 51