

# Homework 10

MATH 262

due ~~5:00pm~~ on Friday, March 27

**11:59pm**

Write your solutions to the following problems clearly and neatly. Make sure to explain your reasoning and provide mathematical details that support your answers. For a few tips on writing solutions, see [this helpful guide for mathematical writing](#).

You may write or type your solutions electronically, or write them on paper and scan or photograph them. Either way, make sure your solutions are easy to read, in order, and clearly labeled. Upload a single PDF file containing your solutions to the [Homework 10](#) assignment on Moodle.

## Book Problems

- Section 3.1 #10 (page 160)
- Section 3.2 #19, 23, 33, 36 (pages 168–171)
- Section 3.3 #39abcj, 40abe (pages 182–187)

*Note:* If you use technology to evaluate probabilities in your solutions, please write the function call (such as `pnorm(x, μ, σ)` or `qnorm(x, μ, σ)`) that you use to get your answer.

## Additional Problem

Suppose  $X$  is a random variable with pdf

$$f(x) = \begin{cases} ax + bx^2, & 0 \leq x \leq 1 \\ 0, & \text{otherwise} \end{cases}$$

and  $E(X) = \frac{1}{9}$ . Either find  $a$  and  $b$ , or explain why this is not possible.