Homework 6

Math 262

due at classtime on Tuesday, November 1

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. Upload a single file containing your solutions to the Homework 6 assignment on Moodle.

Book Problems

- Section 2.7 #107, 109, 113, 114, 117, 125 (pages 129–131)
- Section 3.1 #1, 3, 7, 11 (pages 158–161)

Additional Problem

A moment-generating function uniquely determines a probability distribution. Find the distributions of the random variables that have each of the following moment-generating functions. (*Hint*: refer to Section 2.7.3 in the textbook.) Be sure to state the values of any parameters necessary to specify each distribution.

(a) $M_X(t) = \left[\frac{1}{3}e^t + \frac{2}{3}\right]^5$

(b) $M_Y(t) = \frac{2e^t}{3-e^t}$

(c) $M_Z(t) = e^{3(e^t-1)}$