Homework 5, due February 19

1. Let the function F be defined by

$$f(x) = \begin{cases} 0, & \text{if } x < -1; \\ 1 + x & \text{if } -1 \leq x < 0; \\ 2 + x^2 & \text{if } 0 \leq x < 2; \\ 9 & \text{if } x \geq 2. \end{cases}$$

If μ_F is the Lebesgue–Stieltjes measure generated by F, compute the measure of each of the following sets:

a. $\{2\}$

b. $[-1/2, 3)$

c. $(-1, 0] \cup (1, 2)$

d. $[0, 1/2) \cup (1, 2]$

2. pg 310: 21

3. pg 311: 25 (with $\mathcal{A} = \mathcal{B} = \mathcal{M}$, the Lebesgue measurable sets)

4. pg 312: 29