INTRO TO HIGHER MATH
HOMEWORK 11 DUE DECEMBER 2

(1) Exercise 5.2 in text
(2) Exercise 5.4 in text
(3) Exercise 5.6 in text
(4) Exercise 5.16 in text
(5) Exercise 5.27 in text
(6) Consider the functions

$$f_n(x) = \begin{cases} nx & \text{if } 0 \leq x < 1/n \\ 2 - nx & \text{if } 1/n \leq x < 2/n \\ 0 & \text{otherwise.} \end{cases}$$

Show that the sequence f_n converges pointwise to the constant function $f(x) = 0$. Does f_n converge to f uniformly? Justify your answer.