REVIEW PROBLEMS No. 23

Textbook: Problems 25.14, 26.3, 26.4

Hint 1: In problem 25.14(a) consider defining a reward function that in any renewal interval of length x stops at k, and apply the renewal-reward theorem to get the time-average of the reward, which is what the question asks and is also equal to the c.d.f. of the excess. Note your result will be a function of $\overline{F}(y) = P\{S > y\}$ and some other quantities.

Hint 2: In problem 25.14, $L_{f_e}(s)$ denotes the Laplace transform of S_e.