Durrett Chapter 5 #2.1, 2.2(i), 2.3, 2.4, 2.7, 2.10, 3.2, 3.7

HINTS:

(2.4) Use Exercise 2.3.

(2.10) This is similar to Exercise 2.6 which was done in lecture.

(3.2) Show \( u(s) = 1 + u(s)f(s) \), by matching coefficients of power series.

(3.7) Let \( \epsilon = \min\{\varphi(x) : x \in F\} \), and choose a state \( y \) with \( \varphi(y) < \epsilon \). Show \( P_y(\tau_F < \infty) < 1 \).