5654 Homework 1

Problem 1

Let X be a nonnegative random variable with finite range. Give a complete proof of the formula

$$EX = \int_0^\infty (1 - F_X(t)) \ dt$$

which is given in 1.2.2. In writing down your proof, denote the elements of the range of X by $a_1, \ldots, a_k$, where $a_1 < \ldots < a_k$.

Problem 1.2.9

Problem 1.2.26

Problem 1.3.2

Problem 1.3.4