#2. Problem 66, p. 364

An accident at time s has probability $1 - G(t-s)$ to be NOT claimed at time t $(t > s)$.

$X(t)$ = # of un-claimed accidents at time t is Poisson with parameter

$$\lambda \int_{s=0}^{s=t} 1 - G(t-s)\,ds = \beta \quad \text{(say)}$$

then

$$P(X(t) = n) = e^{-\beta} \frac{\beta^n}{n!} .$$

The \$ amount of the un-claimed, $= \mu \cdot \mathbb{E}(X(t)) = \mu \cdot \beta$

where $\mu = \int_0^\infty t\,dF(t)$ the mean of CDF $F(\cdot)$.

#1. clearly the # of arrivals is a Poisson r.v. We only need to determine the parameter λ.

Ans. $\lambda = 63$ for the day. (summing over 8 AM → 5 PM)