

We define 8:00 as $t = 0$,

$$\lambda(t) = \begin{cases} 100 & 0 \leq t \leq \frac{1}{2} \\ 600t - 200 & \frac{1}{2} < t \leq \frac{3}{4} \\ 400t - 50 & \frac{3}{4} < t \leq 1 \\ -500t + 850 & 1 < t \leq 1.5 \end{cases}$$

$$E[N(t)] = \begin{cases} \int_0^t 100 dt = 100t & 0 \leq t \leq \frac{1}{2} \\ \int_{\frac{1}{2}}^t (600t - 200) dt + 50 = 300(t^2 - \frac{1}{4}) - 200(t - \frac{1}{2}) + 50 & \frac{1}{2} < t \leq \frac{3}{4} \\ \int_{\frac{3}{4}}^t (400t - 50) dt + 93.75 = 25(8t^2 - 2t - 3) + 93.75 & \frac{3}{4} < t \leq 1 \\ \int_1^t (-500t + 850) dt + 168.75 = -50(5t^2 - 17t + 12) + 168.75 & 1 < t \leq 1.5 \end{cases}$$

$$25(8t^2 - 2t - 3) + 93.75 = 150$$

$$\cancel{t_1 = \frac{1}{8}(1 - \sqrt{43}) = -0.69}$$

$$t_2 = \frac{1}{8}(1 + \sqrt{43}) \approx 0.94468$$

$$E[W(t)] = \begin{cases} 100t & 0 \leq t \leq 1/2 \\ 300(t^2 - 1/4) - 200(t - 1/2) + 50 & 1/2 < t \leq 3/4 \\ 25(8t^2 - 2t - 3) + 93.75 & 3/4 < t < 0.94468 \\ 150 & t \geq 0.94468 \end{cases}$$

$$\frac{e^{-\lambda} \lambda^k}{k!}$$

$$\frac{e^{-\lambda} \lambda^1}{1!} + \dots + \frac{e^{-\lambda} \lambda^{149}}{149!} = 0.8$$

$$\sum_{k=0}^{149} P(X=k) = 0.8$$

$$\underline{P(X \leq 150)}$$

$$\sum_{k=0}^{149} \frac{e^{-\lambda} \lambda^k}{k!} = 1$$

$\lambda?$

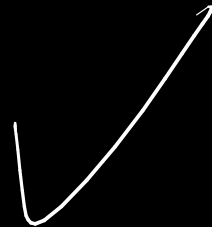
1.609438

$$K = 1, 149$$

0.2

$$\sum_{k=1}^{149} \frac{e^{-\lambda} \lambda^k}{k!}$$

$$-0.8 = 0$$



1,6043...