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Stochastic Processes, 94.553

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Problem Set #7

- **Textbook:** Ch. 6: 91, 101; Ch. 7: 4, 8.
- **Supplementary:**

  1 Let $X(t)$ be a train of amplitude-modulated pulses with occurrences according to a Poisson process:

  $$X(t) = \sum_{k=1}^{\infty} A_k h(t - S_k),$$

  where the A_k's are i.i.d random variables, the S_k's are the event occurrence times in a Poisson process, and $h(t)$ is a function of time such that $h(t) = 0$, for $t < 0$. Assuming that the amplitudes and occurrence times are independent, find the mean of $X(t)$.