Poisson Process Examples

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Example 1

Suppose you are watching an NBA game. You estimate that each team scores 1 field goal every minute on average. You want to know the probability that there are no field goals made during the first 6 minutes of the game.
This is a **poisson process** with a rate of $\lambda = 1$ and amount of time $t = 6$. Let X be a random variable that represents the number of field goals made by a team after t time intervals.
We can model this process like this:

$$Prob(X = 0, t = 6) = \frac{1^0 e^{-6*1}}{0!} = e^{-6} \approx 0.00248$$

Now to get the porbability of both teams not score we just square the probability of one team not scoring.

$\boxed{Final Answer : 0.00000614}$