# Spatial Statistics Exercises Lecture 2

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## 1 Exercise 1

Consider a Poisson process $X$, on the unit square, with intensity function $\rho(x, y) = 400y$. Calculate the mean number of points.
Which of the following point patterns could reasonably be a simulation of $X$. Which Poisson processes could the others be coming from?

## 2 Exercise 2

An insurance agent is trying to estimate the number of car accidents paid by the insurance company during a given year. Let $t \in [0, 12)$ denote time during the year and assume an inhomogeneous Poisson process of car accidents on this interval with intensity function

$$\rho(t) = \begin{cases} \alpha, & if\ t < 3 \text{ or } t \geq 10 \\ \beta, & if\ 3 \leq t < 10, \end{cases}$$

where $\alpha > \beta$ due to the possibility of slippery roads.

1. Using this model, find the mean number of car accidents in the Spring
2.