

hw-E

Let  $x$  denote the number of trees in a quarter-acre plot within a certain forest. Suppose that  $x$  has a Poisson distr. with  $\lambda = 40$  (ie. corresponding to an average density of 40 trees per acre). In what proportion of such plots will there be at least 5 trees?

First fill-in this box, and then answer the question. Your choices are a) trees b) plots c) acres only one of these makes sense, and allows you to use Poisson to answer the question.

Binomial, poisson, etc. give us the proportion of the "1325 samples" (see lecture 5). So, here what goes in the box is "plots".

$$\begin{aligned} \text{prop}(x \geq 5) &= 1 - \text{prop}(x \leq 4) \quad \downarrow \text{Table III} \\ &= 1 - [0.000 + 0.000 + 0.002 + 0.008 + 0.019] = \underline{0.971} \end{aligned}$$