

Your Name: _____

Names of people you worked with: _____

Instructions: Work on this problem in class with your group (if you are attending class synchronously) or out of class (hopefully with a person or two! if you are attending class asynchronously). The problem should be done on a piece of paper with a pencil or on some kind of tablet. The problem should **not** be typed up or done in LaTeX.

Work for a *maximum* of 15 minutes on the problem (regardless of what time you are working). *Do not* come back to the problem to “fix it up” or “finish it.” Be sure to write down the names of the people you worked with during class (or outside of class).

Take a picture of your work and use a scanning app to create a pdf (or create a pdf directly from your tablet). Upload your work to Gradescope (via Sakai) within 24 hours of class.

Task: Suppose that earthquakes in CA occur at a rate of $\lambda = 2$ per week. (A reasonable assumption if you define “earthquake” appropriately.)

1. Find the probability of at least 3 earthquakes in the next 2 weeks.
2. Let T be a new random variable which describes the time in weeks until the next earthquake. Find the distribution of T .

Getting started with #2: first ask yourself, is T discrete or continuous? Then look to find $F_T(t)$. Although you might have more success with $1 - F_T(t)$. Note that “ $1 - F_T(t)$ ” is a probability. What is it the probability of? Can you calculate that probability in terms of what you know about Y ?