

Problem Set 8: Continuous Distributions

CS&SS Math Camp 2021

1. While driving to the Sounders game, you stop at a stoplight at 8:47:00. The time you will have to wait there follows a continuous uniform distribution from 8:47:00 to 8:50:00.
 - (a) What is the probability that you will have to wait at least a minute?
 - (b) What is the probability that you will wait more than 2 minutes?
 - (c) What is the probability that you will wait less than 4 minutes?
 - (d) What is your expected wait time?

2. Suppose we ask 30 people whether they believe Stefan Frei is doing a good job as the National team keeper. 19 people said they agree, 6 said they were neutral, and 5 said they disagree. We believe the city is evenly split between the three viewpoints. Compute the chi-square test statistic to determine whether our belief is reasonable.

3. Suppose that the number of hours graduate students sleep is normally distributed with mean 6 and standard deviation 1. (HINT: use the 68-95-99 Rule or `pnorm` in R.)

(a) What is the probability that a randomly chosen grad student slept 8 or more hours last night?

(b) What is the probability that a randomly chosen grad student slept less than 4 hours last night?

(c) What is the probability that a randomly chosen grad student slept between 5 and 7 hours last night?