Practice - Sampling Distributions
January 11, 2022

1. In one town 51% of the voters are conservative and in a second town 44% of the voters are conservative. Suppose 100 voters are surveyed from each town.

   (a) Is a normal model appropriate for the difference in proportions of conservative voters from the two samples?

   (b) What is the probability that the first sample will yield a lower sample proportion of conservative voters than the second town?

2. The starship Enterprise is exploring a new planet. Spock is inspecting two different alien species. Suppose the first species has a mean weight of 5 kg with a standard deviation of 1 kg, and the second species has a mean weight of 6 kg with a standard deviation of 2 kg. Spock randomly samples 63 of species one, and 80 of species 2.

   (a) Is a normal model appropriate for a difference in sample means?

   (b) What is the probability that species one is greater than 1 kg heavier than species two?