

Introduction to Statistics - Homework #3

Exercise 4.7 - LA Weather, Part I

The average daily high temperature in June in LA is 77°F with a standard deviation of 5°F. Suppose that the temperatures in June closely follow a normal distribution.

(1) What is the probability of observing an 83°F temperature or higher in LA during a randomly chosen day in June?

(2) How cool are the coldest 10% of the days (days with lowest high temperature) during June in LA?

Exercise 4.18 - Chickenpox, Part I

Boston Children's Hospital estimates that 90% of Americans have had chickenpox by the time they reach adulthood.

(1) Calculate the probability that exactly 97 out of 100 randomly sampled American adults had chickenpox during childhood.

(2) What is the probability that at least 1 out of 10 randomly sampled American adults have had chickenpox?

Exercise 4.20 - Chickenpox, Part II

We learned in Exercise 4.18 that about 90% of American adults had chickenpox before adulthood. We now consider a random sample of 120 American adults.

(1) How many people in this sample would you expect to have had chickenpox in their childhood? And with what standard deviation?

(2) What is the probability that 105 or fewer people in this sample have had chickenpox in their childhood?