

(rather hard)

modified from Freedman, Pisani and Purves; Statistics, 4e

In 1969, Dr Spock came on trial. He would have liked women on his jury. The jury was drawn from a panel of 350 people chosen by a clerk. There were 102 women in the panel. At the next stage, the judge chose 100 potential jurors from the 350 on the panel. This pool included 9 women.

- (a) 350 people are chosen at random from a very large population, which is 50% female. What is the probability that the sample contains 102 women?
- (b) 100 people are chosen at random, without replacement, from a group of 102 women and 248 men. What is the probability that this group contains 9 women?

(straightforward)

The correlation between height and weight for men aged 18-74 in the US is about 0.4. For each of the statements below, say whether this follows from the data, and explain your answer.

- (a) Taller men tend to be heavier
- (b) The correlation between weight and height for men aged 18-74 in the US is about 0.4
- (c) Heavier men tend to be taller
- (d) If you put on 10 pounds, you are likely to grow taller

(straightforward)

Urns I, II, and III each contain four pieces of paper, with the numbers 1... 4 on them. I shake each urn, and draw one piece of paper from each.

- (a) What is the probability that all four numbers are the same?
- (b) What is the probability that all four numbers are different?

