

Homework - Probability

Math Camp

Fall 2016

Each question assumes a standard deck of cards. Between each question, assume that you put back whatever cards you drew in the previous and shuffle the deck.

For bonus points, use `rmarkdown` to output nicely-typeset mathematical notation. For the calculation in #7, use an R code chunk to get the answer.

1. What is the marginal probability of drawing a four and then a three from a standard deck of cards?
2. What is the conditional probability of drawing a queen given that you've drawn a heart?
3. What's the probability of drawing a seven given that you've drawn a six?
4. What's the probability of drawing a red four?
5. What's the probability of drawing a seven on the first draw and a three on the second draw?
6. What's the probability of drawing a three on the second draw given you drew a seven on the first draw?
7. It rains 88 days of the year on average in Austin. The weatherperson in Austin is not totally reliable, but they've called for rain tomorrow. When it rains, they correctly forecast rain 80 percent of the time. However, when it is dry, they also predict rain 15 percent of the time. What is the probability that it will rain tomorrow?