Exam 1

February 29, 2024

1. Suppose that $P(A \cup B) = 0.7$ and $P(A \cup \overline{B}) = 0.9$. What is $P(A)$?

2. The student body consists of 60% women and 40% men. It was found that 1/5 of women and 1/4 of men smoke. A student is chosen at random. Calculate the probability that (a) the student is a smoker, and (b) the student is a man, given that the student is a smoker.

3. A drawer contains 1 red, 2 white, and 3 black socks. You draw one sock at a time without replacement. Let Y be the number of trials until you draw the red sock. Compute $P(Y = y)$.