

No calculators are allowed. Show all work clearly and in order. Circle or box your final answer but points will be awarded based on a correct solution. A solution should always justify the steps taken and explain the assumptions needed to reach a final answer (e.g. how do you know you are not dividing by zero in the last step?).

Q1

Consider the probability space (X, \mathcal{B}, P) . Two socks are selected at random and removed in succession from a drawer containing five brown socks and three green socks.

a) What is \mathcal{B} ?

b) What is P ? (Hint: P is defined over every element in \mathcal{B})

c) Define a random variable ω over the probabilities defined in part (b) where ω is the number of brown socks selected.