1 Problem 1

Find c so that the following is a valid probability mass function: $f(x) = cx \text{for} x = 5, 6, 9, 10$

Solution:

Since this is a probability mass function, we know that $\sum_{x=5}^{10} f(x) = 1$

$$\begin{aligned} \sum_{x=5}^{10} f(x) &= 1 \\ \sum_{x=5}^{10} cx &= 1 \\ c\sum_{x=5}^{10} x &= 1 \\ c(5+6+9+10) &= 1 \\ c(30) &= 1 \\ c &= \frac{1}{30} \end{aligned}$$