

Homework 2

*Release Date: September 13, 2023**Due Date: September 20, 2023*

1 Written Questions

- **6.3** from the textbook.
- **6.12** from the textbook.
- **Moment generating function.** Let X_1, \dots, X_N be i.i.d. random variables, with moment generating function $m_X(t) = \mathbb{E}[e^{tX}]$ and mean $\mu = \mathbb{E}[X]$. Consider the average of all N random variables: $Y = \frac{1}{N} \sum_{i=1}^N X_i$. Derive the form of $m_Y(t)$, the moment generating function for Y , and use the Chernoff method to derive a tail bound.