Pre-class preparation

Please read the following textbook sections from Blitzstein and Hwang's *Introduction to Probability* (second edition) OR watched the indicated video from Blitzstein's Math 110 YouTube channel:

- Textbook: Section 4.6
- Video: Lecture 12: Discrete vs. Continuous, the Uniform (from 20:00-28:00)
  - Note that the video doesn't real go through any examples of calculating variance, so it would be good to also skim Section 4.6 of the textbook.

Objectives

By the end of the day's class, students should be able to do the following:

- State the definition of variance, and explain what it means intuitively.
- Compute the variance of a discrete random variable.

Reflection Questions

Please submit your answers to the following questions to the corresponding Canvas assignment by 7:45AM:

1. Explain in words what the variance of a random variable X is.
2. Suppose that X is a random variable with the property that $\mathbb{E}[X^2] = (\mathbb{E}[X])^2$. What must be true about the distribution of X? *Think about this in the context of variance.*
3. Suppose $X \sim$ Discrete Uniform$\{-1, 1\}$. Find Var(X).
4. (Optional) Is there anything from the pre-class preparation that you have questions about? What topics would you like would you like some more clarification on?