DSE 210: Probability and Statistics using Python

Worksheet 1 — Sets and counting

1. Set A is $\{1, 2, 3, 4, 5\}$.

   (a) What is the formal notation for *the set of all sequences of three elements from A*?

   (b) How many such sequences are there?

2. Let A and B be sets with $|A| = 5$ and $|B| = 7$.

   (a) What is the largest size $A \cup B$ could possibly have?

   (b) What is the smallest size $A \cup B$ could have?

   (c) What is the largest size $A \cap B$ could have?

   (d) What is the smallest size $A \cap B$ could have?

3. How many binary sequences of length 10 are there?

4. An ice-cream parlor lets you choose 3 of their 10 available flavors. How many choices do you have?

5. You have six sports trophies, and you want to choose three of them and line them up on your mantel-piece. How many different arrangements can you make?