

Practice Exam 1 Solutions

- $2^3 = 8$.
- The number of subsets of U is $2^{10} = 1024$ and $A \cap B' = \{0, 1\}$.
- $C(5, 2) \cdot C(6, 2) = 150$.
- The first question asks how many outcomes consists of exactly 4 heads, which is $P(5, 1) = 5$. The second asks how many of these have 4 heads in a row, so 2.
- $C(8, 2) = 28$.
- There are $C(52, 5) = 2598960$ poker hands of five cards. There are $C(4, 2) \cdot C(48, 3) = 103776$ hands with exactly 2 kings. There are $C(13, 5) = 1287$ hands that consist of all clubs..
- The Venn diagram consists of three interlacing circles. There are 8 basic regions. $n(A' \cap B \cap C') = 15$ and $n(A' \cap B \cap C) = 10$. We can not determine $n(A' \cap B' \cap C')$, but we could if we knew, for example $n(A \cap C)$.
- There are $P(26, 2) \cdot P(10, 4) = 3276000$ different license plates and $C(26, 2) \cdot C(10, 4) = 68250$ different license plates in alphabetical order.
- $C(2, 1) \cdot P(5, 5) = 240$.
- $\binom{9}{5,3,1} = C(9, 5) \cdot C(4, 3) \cdot C(1, 1) = 504$
- $\binom{8}{2,1,4,1} = \frac{8!}{2!1!4!1!} = 840$.