**Exercise 1.15.** An urn contains 4 balls: 1 white, 1 green and 2 red. We draw 3 balls with replacement. Find the probability that we did not see all three colors. Use two different calculations, as specified by (a) and (b) below.

(a) Define the event $W = \{\text{white ball did not appear}\}$ and similarly for $G$ and $R$. Use inclusion-exclusion.
(b) Compute the probability by considering the complement of the event that we did not see all three colors.

**Exercise 1.22.** We pick a card uniformly at random from a standard deck of 52 cards. (If you are unfamiliar with the deck of 52 cards, see the description above Example C.19 in Appendix C.)

(a) Describe the sample space $\Omega$ and the probability measure $P$ that model this experiment.
(b) Give an example of an event in this probability space with probability $\frac{3}{52}$.
(c) Show that there is no event in this probability space with probability $\frac{1}{5}$.