Solutions of the first week’s homework (Section 1.2 # 1, 4, 5, 8)

- 1. \( S = \{ RRR, RRB, RBR, RBB, BRR, BRB, BBR, BBB\} \)

- 4. EF: One 1 and one even

\[ E^c F : \text{One 1 and one odd} \]
\[ E^c F^c : \text{Both even or both belong to \{3, 5\}.} \]

- 5. \( \{QQ, QN, QP, QD, DN, DP, NP, NN, PP\}, \{QP\}, \{DN, DP, NN\}, \phi. \)

If you consider the two coins draw at different time, the sample space and the corresponding events given below are also correct

\( \{QQ, QN, NQ, QP, PQ, QD, DN, ND, DP, PD, NP, PN, NN, PP\}, \{QP, PQ\}, \{DN, ND, DP, PD, NN\}, \phi. \)

- 8. For \( 1 \leq i \leq 3, 1 \leq j \leq 3 \), by \( a_ib_j \) we mean passenger \( a \) gets off at hotel \( i \) and passenger \( b \) gets off at hotel \( j \). The answer are

\[ \{a_ib_j : 1 \leq i \leq 3, 1 \leq j \leq 3\} \]

and

\[ \{a_1b_1, a_2b_2, a_3b_3\}. \]

respectively.