Roll two dice

\[ S = \{(1,1), (1,2), (1,3), \ldots, (6,6)\} \]

\[ = \{(i, j) \mid 1 \leq i \leq 6 \text{ represents red die} \]
\[ \quad \text{and} \quad 1 \leq j \leq 6 \text{ represents green die}\]

E.g., Event A that the sum of the two dice is at most 4 is

\[ A = \{(i, j) \mid 1 \leq i \leq 6, 1 \leq j \leq 6, \text{ and } i + j \leq 4\} \]

\[ = \{(1,1), (1,2), (1,3), (2,1), (2,2), (3,1)\} \]

\[ A^c \text{ has 30 outcomes.} \]

Notice \[ A \cup A^c = S \]

Say B is the event that the red die shows 1 and the green die does not exceed 3.

\[ B = \{(1,1), (1,2), (1,3)\} \]

B is a subset of A, i.e., \[ B \subseteq A \]