

Roll two dice

	1	2	3	4	5	6
1	█	█	█			
2	█	█				
3	█					
4						
5						
6						

$$S = \{(1,1), (1,2), (1,3), \dots, (6,6)\}$$

$$= \{(i,j) \mid \begin{array}{l} 1 \leq i \leq 6 \text{ represents red die} \\ 1 \leq j \leq 6 \text{ represents green die} \end{array}\}$$

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

$$A = \{(i,j) \mid \begin{array}{l} 1 \leq i \leq 6, 1 \leq j \leq 6, \\ \text{and } i+j \leq 4 \end{array}\}$$

$$= \{(1,1), (1,2), (1,3), (2,1), (2,2), (3,1)\}$$

$A^c$  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.  $B \subset A$