

Solution to problem

(1)

$$\Omega = \{1, 2, 3, 4, 5, 6\}$$

Let  $i$  denote # of spots on the uppermost side

the problem is to find conditional prob.

$$\begin{aligned} \Pr\{i=3 \mid i \text{ is odd}\} &= \frac{\Pr\{i=3 \text{ and } i \text{ is odd}\}}{\Pr\{i \text{ is odd}\}} = \frac{\Pr\{i=3\}}{\Pr\{i \text{ is odd}\}} \\ &= \frac{1/6}{1/2} = \frac{1}{3} \end{aligned}$$

$\Pr\{i=3\}$  = Pr { event of the uppermost side showing 3 spots occurs }

$\Pr\{i \text{ is odd}\}$  = Pr { event of rolling an odd # occurs }