

70% of voters approve of mayor  
On 3 separate occasions, voter selected  
at random

What is probability that on exactly one  
of these occasions, the voter approves  
of mayor?

$$\begin{aligned} & {}^3C_1 \times 0.7 \times 0.3^2 \\ &= 3 \times 0.7 \times 0.3^2 \\ &= 0.189 \end{aligned}$$

Two fair coins are tossed once.

For each head, a fair die is rolled

If die not rolled counted as 0

What is probability that sum of die rolls is odd?

$$P(\text{both tails}) = \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$$

→ dice counted as 0's

→ even sum

$$P(\text{one tail}) = \frac{1}{2}$$

$$\rightarrow P(\text{sum odd}) = P(\text{single roll odd}) = \frac{1}{2}$$

$$P(\text{both heads}) = \frac{1}{4}$$

$$\rightarrow P(\text{sum odd}) = \frac{1}{2} \rightarrow \text{regardless of what 1st die is, there's 50\% chance that second roll is odd}$$

	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11

6 | 7 8 9 10 11 12

$$\begin{aligned} \text{So } P(\text{odd sum}) &= \frac{1}{4} \times 0 + \frac{1}{2} \times \frac{1}{2} + \frac{1}{4} \times \frac{1}{2} \\ &= \frac{1}{4} + \frac{1}{8} \\ &= \frac{3}{8} \end{aligned}$$

