Compound events

6 questions | 15 marks

Equivalent correct methods earn the corresponding marks.

1. List the complete outcomes for two coin tosses. [2 marks]

Keep first and second toss positions distinct.

Answer: HH, HT, TH, TT.

2. Two fair coins are tossed. Find P(exactly one head). [2 marks]

HT and TH are favourable: 2/4.

Answer: $\frac{1}{2}$.

3. A fair six-sided die is rolled. Find P(odd or prime). [2 marks]

Odd={1,3,5}, prime={2,3,5}.

Union={1,2,3,5}:4/6.

Answer: $\frac{2}{3}$.

4. Two fair dice are rolled. Find P(sum 7). [3 marks]

There are 36 ordered pairs.

Six pairs sum to 7, giving 6/36.

Answer: $\frac{1}{6}$.

5. Find P(at least one 6) on two fair dice. [3 marks]

The complement has neither die equal to 6.

1−(5/6)^2=11/36.

Answer: $\frac{11}{36}$.

6. A fair coin is tossed independently of a fair six-sided die roll. Find P(head or die shows 6). [3 marks]

Head contributes 6 outcomes, a 6 contributes 2, and (H,6) overlaps.

(6+2−1)/12=7/12.

Answer: $\frac{7}{12}$.