Topic test | Probability

Probability - Practice test 1

Name: _____ Date: _____

16 questions | 38 marks | 55 minutes

Build from sample spaces to replacement models, overlapping events and trial evidence.

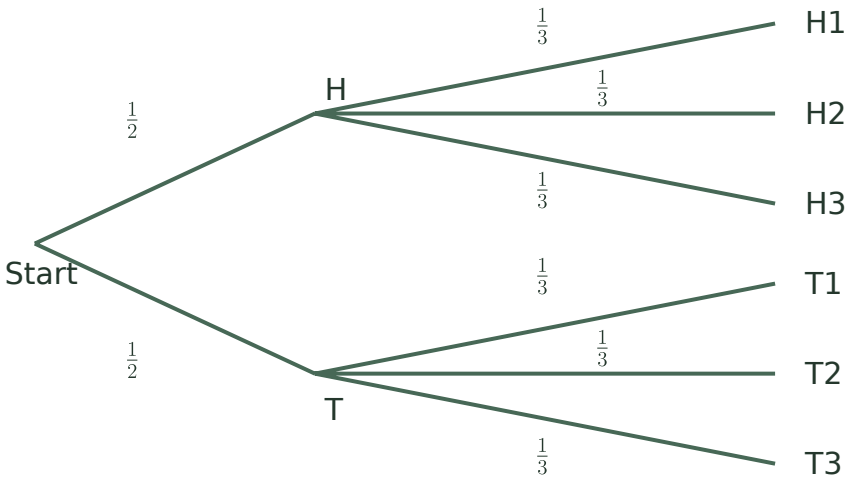
No calculator needed.

1. A fair die is rolled. Find $P(\text{number greater than } 4)$. [1 mark]

2. List all ordered outcomes for two coin tosses. [1 mark]

3. Two fair independent coins are tossed. Find $P(\text{exactly one head})$. [2 marks]

4. A fair coin is followed by an independent equal spinner labelled 1, 2, 3. Find $P(\text{heads and } 2)$. [2 marks]



5. Two fair independent dice are rolled. Find $P(\text{sum } 8)$. [3 marks]

6. An equal spinner labelled A, B, C is spun twice independently. Find $P(\text{different letters})$. [2 marks]

7. A bag has 4 red and 1 blue counter. Draw twice at random, replacing and mixing after the first draw. Find $P(\text{two reds})$. [2 marks]

8. A bag has 4 red and 1 blue counter. Draw twice at random without replacement. Find $P(\text{red then blue})$. [2 marks]

9. A bag has 4 red and 1 blue counter. Draw twice at random without replacement. Find $P(\text{one counter of each colour})$. [3 marks]

10. Of 24 students, 14 attend art, 10 attend music and 4 attend both. [4 marks]

(a) How many attend at least one of the two activities? [2 marks]

(b) Find the probability that a randomly chosen student attends neither. [2 marks]

11. A fair die is rolled. Find $P(\text{even or prime})$. [3 marks]

12. An event occurs 36 times in 120 trials. [3 marks]

(a) Find its relative frequency. [1 mark]

(b) Use this estimate to predict its count in 180 similar trials. [2 marks]

13. Give a fair random-digit mapping, using digits 0-9, to simulate a fair coin. [2 marks]

14. Use $0–4 = \mathrm{H}$ and $5–9 = \mathrm{T}$. Read pairs 03, 57, 28, 64, 91. Find the relative frequency of exactly one head. [3 marks]

15. An event has probability $\frac{1}{4}$. Explain whether 80 independent trials must contain exactly 20 successes. [2 marks]

16. A fair independent coin gives four tails. A student says heads is now more likely. Assess the claim. [3 marks]