Year 8 Probability - Topic test

Name: _____ Date: _____

15 questions | 36 marks | 45 minutes

Progressive questions combine techniques, interpretation and reasoned applications. All practice data are supplied.

No calculator needed.

1. If $P(A) = 0.37$, find $P(\text{not } A)$. [1 mark]

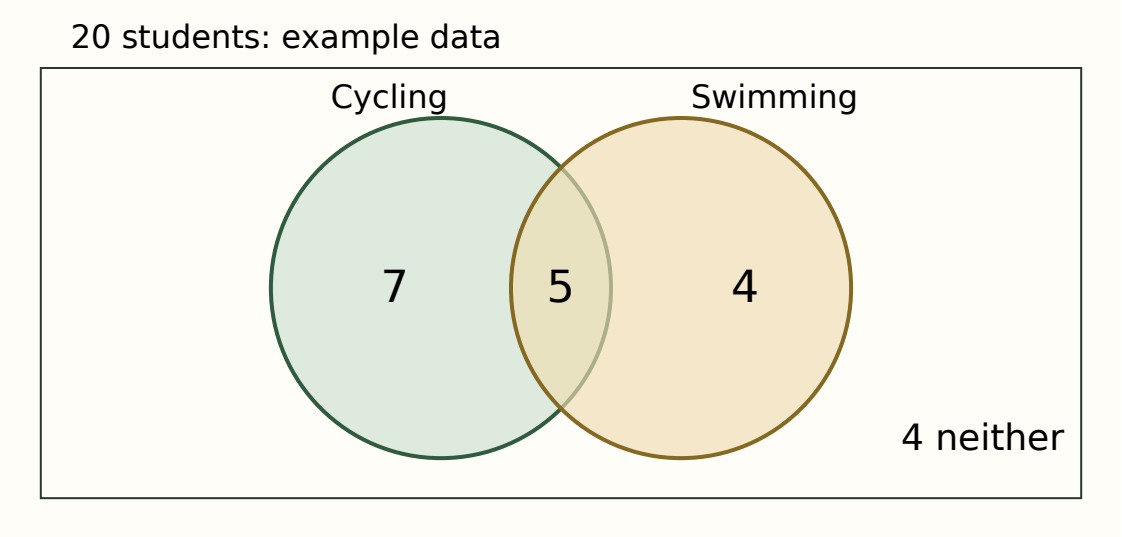
2. A bag has 5 red,2 blue,3 yellow counters. Find $P(\text{not blue})$. [2 marks]

3. List outcomes for two ordered coin tosses. [2 marks]

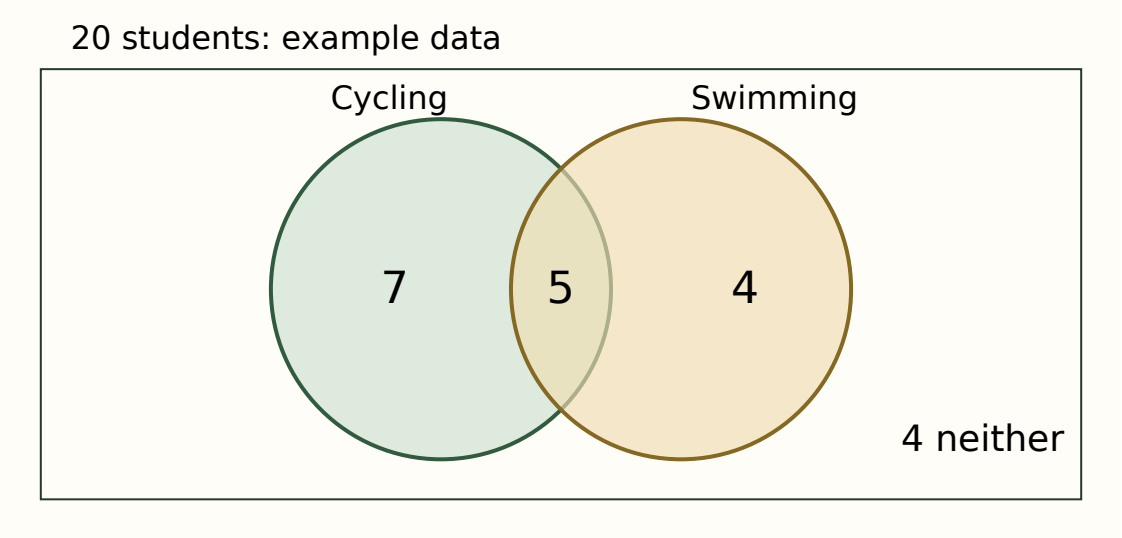
4. A fair coin then an independent fair 1,2,3 spinner is used. Find $P(\text{head and spinner } 2)$. [2 marks]

5. Two independent fair spinners each show 1,2,3. List sum-4 pairs and their probability. [3 marks]

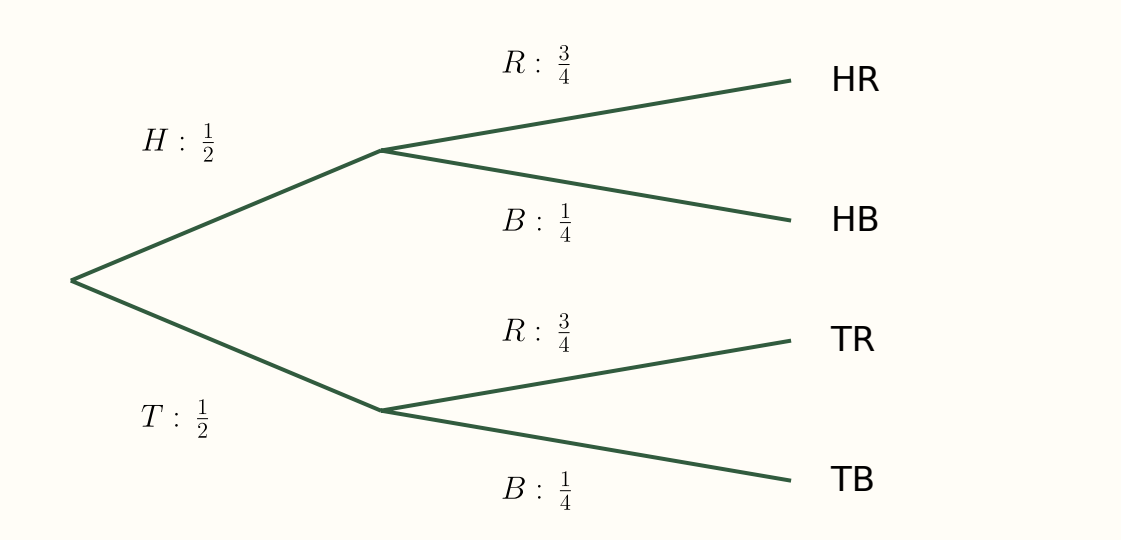
6. Use the Venn diagram. Find $P(\text{swimming but not cycling})$. [2 marks]



7. Use the Venn diagram. Find $P(\text{cycling or swimming})$. [2 marks]



8. Use the tree. Find $P(\text{head and red})$. [2 marks]



9. A bag has 2 red and 3 blue tokens. Draw a token at random, replace it, then draw again at random. Find $P(\text{two red})$. [2 marks]

10. Draw two tokens at random without replacement from B1, B2 and G. Find $P(\text{one of each colour})$. [3 marks]

11. Find $P(\text{odd or greater than } 4)$ for a fair die. [2 marks]

12. A probability-$\frac{1}{4}$ event occurs 41 times in 160 trials. State expected frequency and experimental probability. [3 marks]

13. An event occurs 16 times in 40 trials and 44 times in 160 more. Find the combined frequency estimate. [3 marks]

14. Use the simulation table to estimate $P(\text{exactly one head})$ and compare with theory. [3 marks]

Original practice simulation: 24 trials of two fair coins

Outcome	Count
HH	5
HT	7
TH	6
TT	6

15. Design a two-dice simulation and explain why drawing sums uniformly from 2 to 12 fails. [4 marks]