

Probability and Tree Diagrams

GCSE Mathematics • **Foundation Tier** • Grades 4–5 • Non-calculator

Name:

Class:

Total: / 51

Show all your working. Marks are given for correct method as well as the final answer.

1. A fair six-sided dice is rolled. Write down the probability of rolling a 4. [1 mark]

Answer:

2. A fair dice is rolled. Work out the probability of an even number. [2 marks]

Answer:

3. The probability it rains is 0.3. Work out the probability it does not rain. [2 marks]

Answer:

4. A bag has 5 red and 3 blue counters. One is taken at random. Work out $P(\text{red})$. [2 marks]

Answer:

5. A spinner has outcomes A, B and C with $P(A) = 0.2$ and $P(B) = 0.5$. Work out $P(C)$. [2 marks]

Answer:

6. A coin is flipped 200 times. Work out the expected number of heads. [2 marks]

Answer:

7. The probability of a faulty bulb is 0.04. In a batch of 500, work out the expected number of faulty bulbs. [2 marks]

Answer:

8. A dice is rolled 60 times and a 6 comes up 15 times. Work out the relative frequency of a 6. [2 marks]

Answer:

9. Using the same data, explain whether the dice seems fair. [2 marks]

Answer:

10. The table shows how 60 students travel to school. Work out the probability a student chosen at random travels by bus. [2 marks]

	Bus	Walk	Total
Year 10	18	12	30
Year 11	14	16	30
Total	32	28	60

Answer:

11. Using the same table, work out the probability a student is in Year 11 and walks. [2 marks]

Answer:

12. Using the same table, a Year 10 student is chosen. Work out the probability they walk. **[3 marks]**

Answer:

13. A coin is flipped twice. Work out the probability of two heads. **[2 marks]**

Answer:

14. The probability a bus is late is 0.2. Work out the probability it is late on two days running. **[2 marks]**

Answer:

15. Using the same bus, work out the probability it is on time both days. **[3 marks]**

Answer:

16. Using the same bus over two days, work out the probability it is late exactly once. **[4 marks]**

Answer:

17. A bag has 4 red and 6 blue counters. Two are taken without replacement. Write down the probability the first is red. [1 mark]

Answer:

18. From the same bag, given the first was red, write down the probability the second is also red. [2 marks]

Answer:

19. A bag has 4 red and 6 blue counters. Two are taken without replacement.

(a) Work out the probability both are red. [3 marks]

(b) Work out the probability they are different colours. [4 marks]

Answer:

20. A box has 3 toffees and 5 mints. Two sweets are taken without replacement.

(a) Work out the probability both are mints.

[3 marks]

(b) Work out the probability at least one is a toffee.

[3 marks]

Answer: