Test - Probability basics

Year: Year 7 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – Probability basics

A bag contains 6 red counters, 4 blue counters and 5 green counters. One counter is taken at random.

a. Find the probability that it is blue. (1 mark)
b. Find the probability that it is not red. (1 mark)
c. Find the probability that it is yellow. (1 mark)
d. The bag has 30 counters instead and the probability of green is 0.4. How many green counters? (1 mark)

Question 2 (4 marks)

Question 2 – Listing outcomes

A spinner has the numbers 1, 2, 3. A fair coin is flipped. The spinner is spun and the coin is flipped.

a. List all the possible outcomes. (2 marks)
b. Find the probability of getting a 3 and heads. (1 mark)
c. Find the probability of getting tails and an odd number. (1 mark)

Question 3 (4 marks)

Question 3 – Expected outcomes

The probability that a pupil is left-handed is 0.1. There are 240 pupils in Year 7.

a. How many pupils would you expect to be left-handed? (1 mark)
b. The school has 30 left-handed scissors. Is that enough for the whole of Year 7? Explain. (1 mark)
c. A class of 28 pupils has 4 left-handed. Work out the relative frequency. (1 mark)
d. Is it surprising? Explain. (1 mark)

Question 4 (4 marks)

Question 4 – Problem: the school fair game

At a fair, Mia pays £1 to spin a wheel with 10 equal sections: 1 section pays £5, 2 sections pay £2 and 7 sections pay nothing.

a. Find the probability of winning £5. (1 mark)
b. Find the probability of winning something. (1 mark)
c. Mia plays 50 times. How many times does she expect to win £2? How much does she expect to win in total? (2 marks)

Question 5 (4 marks)

Question 5 – Problem: the weather and the match

The probability that it rains on any given Saturday is 0.35. The school football team plays 20 Saturday matches.

a. Find the probability that it does not rain on a given Saturday. (1 mark)
b. How many Saturdays would you expect to be rainy? (1 mark)
c. In the first 8 matches it rained on 5 Saturdays. Work out the relative frequency of rain. (1 mark)
d. Explain why the relative frequency is different from 0.35. (1 mark)