Test - Probability: outcomes and sample spaces

Year: Year 8 · 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 – Theoretical probability

A bag contains 4 red, 6 blue and 10 green counters. One is picked at random. Give each probability as a fraction in its simplest form.

a. The counter is blue. (1 mark)
b. The counter is not green. (1 mark)
c. Another bag has probability $\frac{1}{4}$ of red. It contains 5 red counters. How many counters are in the bag? (2 marks)

Question 2 (4 marks)

Question 2 – Expected outcomes

The probability that a train is late is 0.15.

a. What is the probability that it is not late? (1 mark)
b. In 200 journeys, how many late trains are expected? (1 mark)
c. A pupil says "In 20 journeys exactly 3 trains will be late." Is he correct? Explain. (2 marks)

Question 3 (4 marks)

Question 3 – Sample space

Two coins are flipped and a die is rolled.

a. List the outcomes of flipping the two coins. (1 mark)
b. How many outcomes are there when the die is also rolled? (1 mark)
c. Find the probability of two heads and an even number. (2 marks)

Question 4 (4 marks)

Question 4 – Problem: two dice

Two fair dice are rolled and the scores are multiplied.

a. Find the probability that the product is 12. (2 marks)
b. Find the probability that the product is an odd number. (2 marks)

Question 5 (4 marks)

Question 5 – Problem: Venn diagram

In a class of 30 pupils, 18 play football (F), 12 play tennis (T) and 5 play both.

a. How many play neither sport? (2 marks)
b. A pupil is chosen at random. Find the probability that they play tennis only. (1 mark)
c. Find the probability that a pupil who plays football also plays tennis. (1 mark)