FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... Class .....

P7: Sample spaces

Solve problems using sample spaces for combined events

20 marks · 25 minutes · Non-calculator

1) Two spinners numbered 1 to 5 are spun and the scores multiplied. Find the probability that the product is greater than 10

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[Question 1: 3 marks]

2) Two dice are rolled and the score is the larger of the two numbers. Find the probability that the score is 6

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[Question 2: 3 marks]

3) A coin is flipped and a dice is rolled. You win with a head and a prime number, or a tail and a 6. Find the probability of winning.

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[Question 3: 3 marks]

4) Two dice are rolled and the difference between the scores is found. Which difference is most likely, and what is its probability?

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[Question 4: 3 marks]

5) Three coins are flipped. Find the probability of at least two heads.

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[Question 5: 2 marks]

6) A card is taken from cards numbered 1 to 10 and a dice is rolled. Find the probability that the card number is greater than the dice score.

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[Question 6: 4 marks]

7) Two dice are rolled. Find the probability that the total is a prime number.

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[Question 7: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	$\frac{8}{25}$	Sample space of 25 (P1); 8 outcomes listed (P1); A1.
2	$\frac{11}{36}$	At least one 6 (P1); 11 outcomes (P1); A1.
3	$\frac{1}{3}$	$\frac{3}{12} + \frac{1}{12}$ (P1, P1); A1.
4	1; $\frac{5}{18}$	Table of differences (P1); difference 1 occurs 10 times (P1); A1.
5	$\frac{1}{2}$	4 out of 8 (P1); A1.
6	$\frac{13}{20}$	For dice d, $10 - d$ cards (P1, P1); $\frac{39}{60}$ (P1); A1.
7	$\frac{5}{12}$	15 out of 36 (P1); A1.