FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

P4: Probabilities that sum to 1

Exhaustive and mutually exclusive outcomes

20 marks · 25 minutes · Non-calculator

1) The probability that it rains tomorrow is 0.35. Find the probability that it does not rain.

.....

[Question 1: 1 marks]

2) A bag holds red, blue, green and yellow counters. Find the probability of green.

Colour	red	blue	green	yellow
Probability	0.2	0.35		0.15

.....

[Question 2: 2 marks]

3) A biased spinner has four sections. Find the probability of landing on 2.

Number	1	2	3	4
Probability	0.1	$2x$	x	0.3

.....

[Question 3: 3 marks]

---

4) The probability that a team wins is $\frac{3}{8}$ and the probability that it draws is $\frac{1}{4}$. Find the probability that it loses.

.....

[Question 4: 2 marks]

---

5) A and B are mutually exclusive. $P(A) = 0.4$ and $P(B) = 0.25$

(a) Find $P(A \text{ or } B)$.

.....

(1)

(b) Find the probability that neither A nor B happens.

.....

(1)

[Question 5: 2 marks]

---

6) A bag holds 30 red, blue and green counters. The probability of red is 0.5 and the probability of blue is 0.2. How many green counters are there?

.....

[Question 6: 2 marks]

---

7) A fair dice is rolled. Are the events "an even number" and "a multiple of 3" mutually exclusive? Give a reason.

.....

[Question 7: 1 marks]

---

8) Raj says the probabilities of the only three possible outcomes of an event are 0.3, 0.5 and 0.3. Explain why he must be wrong.

.....

[Question 8: 1 marks]

---

9) The probability that a train is late is 0.08. Find the probability that it is not late.

.....

[Question 9: 1 marks]

---

10) A spinner lands on A, B or C. $P(A) = x$, $P(B) = 0.4$ and $P(C) = 3x$. Find $P(C)$.

.....

[Question 10: 2 marks]

11) The probabilities of grades A, B and C are 0.15, 0.45 and 0.4. Find the probability of grade A or B.

.....

[Question 11: 1 marks]

12) A dice is biased. The probability of a 6 is 0.25. The other five numbers are equally likely. Find the probability of a 1.

.....

[Question 12: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	0.65	B1.
2	0.3	$1 - 0.7$ (M1); A1.
3	0.4	$0.1 + 3x + 0.3 = 1$ (M1); $x = 0.2$ (A1); 0.4 (A1).
4	$\frac{3}{8}$	$1 - \frac{5}{8}$ (M1); A1.
5	(a) 0.65 (b) 0.35	B1 each.
6	9	$P(\text{green}) = 0.3$ (M1); A1.
7	No; 6 is in both	B1.
8	They add up to 1.1, not 1	B1.
9	0.92	B1.
10	0.45	$4x = 0.6$ (M1); A1.
11	0.6	B1.
12	0.15	$0.75 \div 5$ (M1); A1.