FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

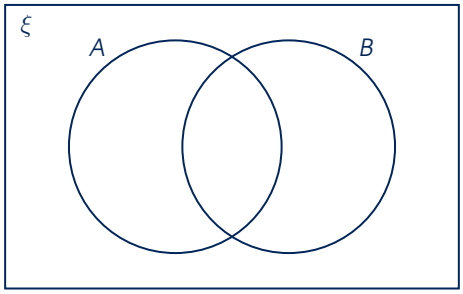
P6: Listing outcomes and Venn diagrams

Enumerate sets and combinations using lists, tables, grids, Venn diagrams and trees

20 marks · 25 minutes · Non-calculator

1) $\xi = \{1, 2, 3, \ldots, 12\}$, A = multiples of 3, B = even numbers.

(a) Complete the Venn diagram.



(3)

(b) List the members of $A \cap B$.

.....

(1)

(c) How many members does $A \cup B$ have?

.....

(1)

(d) How many members does A' have?

.....

(1)

(e) List the members of $A \cap B'$.

.....

(1)

[Question 1: 7 marks]

2) A coin is flipped and a dice is rolled. List all the possible outcomes.

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[Question 2: 2 marks]

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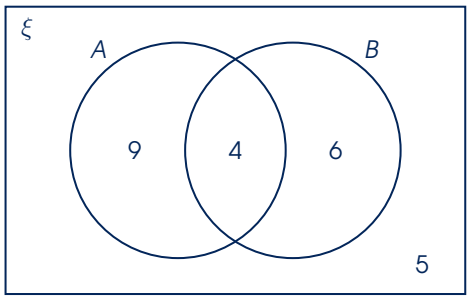
3) In a class of 30 students, 18 play football, 12 play tennis and 7 play both. How many play neither?

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[Question 3: 2 marks]

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4) The Venn diagram shows the numbers of people in sets A and B.



(a) How many people are there altogether?

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(1)

(b) How many people are in set B?

.....

(1)

(c) Find $n((A \cup B)')$.

.....

(1)

[Question 4: 3 marks]

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5) Spinner X has numbers 1, 2 and 3. Spinner Y has numbers 1 and 2. List all the possible pairs of scores.

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[Question 5: 2 marks]

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6) Three fair coins are flipped.

(a) How many possible outcomes are there?

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(1)

(b) List the outcomes with exactly two heads.

.....

(2)

[Question 6: 3 marks]

7) Two dice are rolled. How many possible outcomes are there?

.....

[Question 7: 1 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	(a) *A* only 3, 9; both 6, 12; *B* only 2, 4, 8, 10; outside 1, 5, 7, 11 (b) 6, 12 (c) 8 (d) 8 (e) 3, 9	(a) B3 (B2 for 3 regions correct, B1 for 2). (b)–(e) B1 each.
2	H1, H2, H3, H4, H5, H6, T1, T2, T3, T4, T5, T6	B2 (B1 for 8 or more correct).
3	7	$18 + 12 - 7 = 23$ (M1); A1.
4	(a) 24 (b) 10 (c) 5	B1 each.
5	(1,1), (1,2), (2,1), (2,2), (3,1), (3,2)	B2 (B1 for 4 or 5).
6	(a) 8 (b) HHT, HTH, THH	(a) B1. (b) B2 (B1 for 2).
7	36	B1.