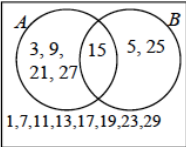
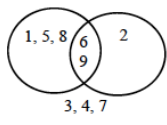
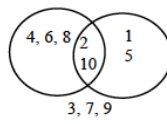
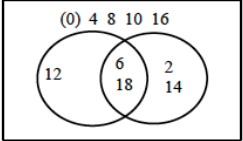


1	(a)		Venn Diagram	B1 M1 M1 C1	for labels on diagram for just 15 in the intersection for just 5 and 25 in only set B or just 3, 9, 21 and 27 in only set A or just 1, 7, 11, 13, 17, 19, 23, 29 in $(A \cup B)'$ for all numbers correctly placed in the Venn Diagram Ignore all entries except the region you are marking for each method mark
	(b)		$\frac{7}{15}$	P1 A1	ft for $\frac{7}{a}$ where $a \geq 7$ or $\frac{b}{15}$ where $b \leq 15$ ft $\frac{7}{15}$ oe

2		$\frac{6}{490}$	P1	for start to process information, eg draws Venn diagram and shows at least 1 unknown amount, eg 5 speak German and Spanish but not French	See Venn Diagram at end of mark scheme – rectangle not needed Award first 3 marks to students who show this on the Venn diagram or in a statement. Award this mark for use of their number of students who speak Spanish. Must be a clear link, eg from Venn diagram See note 8 in general marking guidance but 0.01 or 1% must be from seen correct working.
			P1	for process to find at least 3 unknown amounts from, eg 5 speak German and Spanish but not French 3 speak French and German but not Spanish 22 speak French but not German or Spanish 0 speak German but not French or Spanish	
			P1	for complete process to find number of people who speak only Spanish (= 6)	
			P1	for $\frac{[\text{number speaking Spanish only}]}{50} \times \frac{[\text{number speaking Spanish only}] - 1}{49}$, eg $\frac{6}{50} \times \frac{5}{49}$	
			A1	for $\frac{6}{490}$ oe	

3	(a)	6, 9	M1	for 6, 9 in the intersection only	Ignore all entries except the region you are marking for each method mark 
		1, 5, 8 2	M1	for 1, 5, 8 in set A only or 2 in set B only or 3, 4, 7 in set $(A \cup B)'$ only	
		3, 4, 7	C1	for all numbers correctly placed in the Venn Diagram	
	(b)	$\frac{2}{9}$	M1	ft for identification of 2 or 9 or ft diagram	Need not be written in correct form at this stage eg could be a ratio 2 : 9 Repeated digits in the diagram should be counted as 2 elements Accept any equivalent fraction, decimal form 0.22(22...) or percentage form 22(22...)%
		A1	$\frac{2}{9}$ oe or ft diagram		

4	(a)	Venn diagram	M1	for correct numbers in at least one region	Ignore all entries except the region you are marking for each method mark 
			M1	for correct numbers in at least two regions	
			A1	for all regions correct	
	(b)	$\frac{2}{10}$	M1	for $\frac{a}{10}$ where $0 < a < 10$ and a is an integer or $\frac{2}{b}$ where $b > 2$ and b is an integer or ft diagram	Need not be written in correct form at this stage eg could be a ratio 2 : 10 Repeated digits in the diagram should be counted as 2 elements Accept any equivalent fraction, decimal form 0.2 or percentage form 20%
		A1	$\frac{2}{10}$ oe or ft diagram		

5	Venn Diagram	C1 C1 C1	for one correct region for two correct regions for all regions correct	 <p>Ignore all entries except the region you are marking for each mark</p>
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