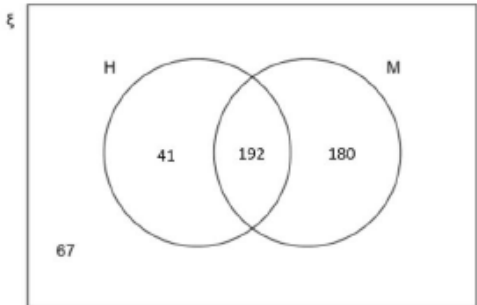
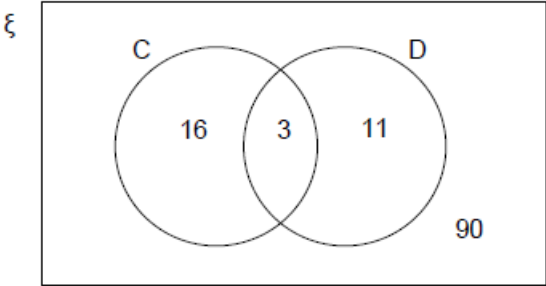


Q	Answer	Mark	Comments
1	480×0.4 or 192	M1	oe implied by 2400
	$480 \times \frac{3}{8}$ or 180	M1	oe implied by 1440
	$480 - \text{their } 192 - \text{their } 180 - 67$ or 41	M1	oe implied by 287
	their $192 \times 12.5 + \text{their } 180 \times 8 + \text{their } 41 \times 7$ or $2400 + 1440 + 287$	M1	
	4127	A1	
	Additional Guidance		
	Method marks may be awarded for correct work seen on Venn diagram or in working, with no or incorrect answer, even if this is seen amongst multiple attempts		
	For the 4 th method mark, incorrectly placed values from their Venn diagram may be used or values connected to the correct category eg if house only and museum only values transposed on the Venn diagram accept their $192 \times 12.5 + \text{their } 41 \times 8 + \text{their } 180 \times 7$		
	 <p>A Venn diagram with two overlapping circles labeled H and M. Circle H contains the number 41, circle M contains the number 180, and the intersection of H and M contains the number 192. The number 67 is written outside circle H, in the region of the universal set ξ that does not contain H or M.</p>		
	$40\% \text{ of } 413 = 165, \frac{3}{8} \text{ of } 165 = 62, 413 - 62 - 165 = 186$ $165 \times 12.50 + 62 \times 8 + 186 \times 7 = 3860.50$		M0M0M1M1A0
	$H = 154.875, H\&M = 165.2$ $480 - 67 - 154.875 - 165.2$		M0M0M1

Q	Answer	Mark	Comments
2	Valid criticism referring to one or both sets not being labelled	B1	eg the circles should be labelled or the labels are missing
	Valid criticism referring to the numbers not adding to 98	B1	eg the numbers add to 99 or 48 should be 47 SC1 no written criticisms, but circles labelled correctly and 48 changed to 47 on diagram
	Additional Guidance		
	Accept both statements written in one criticism		
	For more than two criticisms mark the best two unless contradicted		
	Condone written corrections as criticisms eg Add labels	B1	
	Criticism 1 - There is no A label and Criticism 2 - There is no F label	B1B0	
	Didn't label the diagram	B1	
	There are no subjects	B1	
	The diagram doesn't have labels/headings/titles	B1	
	The diagram doesn't have a label/heading/title	B0	
	It doesn't show how many study French	B0	
	48 is wrong/one of the numbers is wrong	B1	
	There's an extra student	B1	
	It doesn't add up correctly/the total is wrong	B1	
	It doesn't add up	B0	
	The numbers are wrong	B0	
	Do not accept an incorrect statement eg The number doing Art and French should be 47	B0	
	If a value is used as evidence it must be correct eg the total is 100, not 98	B0	

Q	Answer	Mark	Comments
3(a)	8 in W only	B1	
	21 in (H U W)'	B1ft	ft 29 – their 8 their 8 must be < 29
	Additional Guidance		
	15 in W only 21 in (H U W)'		B0 B1
	15 in W only 14 in (H U W)'		B0 B1ft
Q	Answer	Mark	Comments
3(b)	$\frac{7}{60}$ or [0.116, 0.117] or [11.6, 11.7]%	B1	oe fraction
	Additional Guidance		
	Ignore conversion attempt to decimal, fraction or percentage (but not ratio) after correct probability seen		
	Do not allow eg 7 in 60 or 7 out of 60 unless the correct probability seen		
	Do not allow ratio		
	Ignore words if correct probability seen		

Q	Answer	Mark	Comments
3(c)	Valid explanation	B1	eg needs brackets around $35 - 19$
	Additional Guidance		
	Any calculations shown must be correct		
	Ignore irrelevant, non-contradictory statements		
	It gives 25.5 and it should be 8	B1	
	(It gives the wrong answer,) it should be 8	B1	
	He shouldn't divide (by 2) first	B1	
	He needs brackets around the takeaway	B1	
	He needs to subtract first	B1	
	He should do $35 - 19$ and then divide by 2	B1	
	$(35 - 19) \div 2$ (may correct the given calculation by adding brackets)	B1	
	$\frac{35 - 19}{2}$ (implies the brackets)	B1	
	This gives 25.5 (or 51) when he needs 8 or 16	B1	
	$35 - 19 = 16$ $16 \div 2 = 8$ (needs to say that this is what he should do)	B0	
	This gives 25.5 (or 51) which is too much (needs to compare with 8 or 16)	B0	
	He hasn't used BIDMAS	B0	
	It gives the wrong answer	B0	
	$35 - 19 \div 2 = 8$	B0	
	$35 - 19 \div 2 = 25.50$	B0	
	He needs brackets	B0	

Q	Answer	Mark	Comments
4	$120 \div 4 \times 3$ or 90	M1	oe implied by 90 in the box and outside the circles
	$14 + 19 + \text{their } 90 - 120$ or $14 + 19 - 120 \div 4$ or 3 or $19 - \text{their } 3 \text{ in C only}$ and $14 - \text{their } 3 \text{ in D only}$	M1	oe their 90 must be > 87 $0 < \text{their } 3 < 14$
	16, 3, 11 and 90 in correct positions	A1	SC1 their 4 Venn diagram values total 120, allow a blank intersection to imply 0
	Additional Guidance		
	Allow up to M1M1 for working outside Venn diagram but Venn diagram takes precedence over working		
	3 in the intersection with 90 in the box and outside the circles		M1M1
	3 in the intersection with a different number to 90 in the box and outside the circles		M0M1
			M1M1A1