1 A group of 200 Year 11 students at Bayview Secondary College were asked to indicate their subject choices for Year 12. It was found that 135 chose a mathematics subject (M), 84 chose a language (L), and 55 chose both mathematics and a language.

a Draw a Venn diagram to show this situation, and use the diagram to determine the number of students who chose either a language or mathematics or both. Hence find $\Pr(M \cup L)$.

b From the Venn diagram write down the following probabilities:

i $\Pr(M)$
ii $\Pr(L)$
iii $\Pr(M \cap L)$

c Use the addition rule to determine the value of $\Pr(M \cup L)$.

d Use the information in this question to complete the following Karnaugh map:

	L	L'	
M			
M'			
			1

2 Another group of 100 Year 11 students at Mountainview Secondary College were also asked to indicate their subject choices for Year 12. Here it was found that 75 chose a mathematics subject (M), 44 chose a language (L), and 25 chose both mathematics and a language.

a Use the information in this question to complete the following Karnaugh map.

	L	L'	
M			
M'			
			1

b Use the Karnaugh map from part **a** to determine:

i the probability that a student chose mathematics and did not choose a language
ii the probability that a student chose neither mathematics nor a language.

3 Bayview and Mountainview Secondary Colleges decide to amalgamate. Find the probability that a student at the combined school chose mathematics.