Question 1

(25 marks)

An experiment consists of throwing two fair, standard, six-sided dice and noting the sum of the two numbers thrown. If the sum is 9 or greater it is recorded as a "win" (W). If the sum is 8 or less it is recorded as a "loss" (L).

(a) Complete the table below to show all possible outcomes of the experiment.

		Die 2														
		1	2	3	4	5	6									
	1		L													
Die 1	2															
	3															
	4															
	5						W									
	6															

(b) (i) Find the probability of a win on one throw of the two dice.

(ii) Find the probability that each of 3 successive throws of the two dice results in a loss. Give your answer correct to four decimal places.

(c) The experiment is repeated until a total of 3 wins occur. Find the probability that the third win occurs on the tenth throw of the two dice. Give your answer correct to four decimal places.

