Question 15 **(6 marks)**

A tetrahedral die has the numbers 1 to 4 on each face. When thrown, each side is equally likely to land facedown. Let X be defined as the sum of the numbers on the facedown side when the die is thrown twice.

(a) Complete the following table. (1 mark)

		Roll two			
Roll one	Sum of two rolls	1	2	3	4
	1	1 + 1 = 2	3		
	2	3			
	3		5		
	4				

(b) (i) Hence, or otherwise, complete the probability distribution of X, which is given by the following table. (1 mark)

x	**2**	**3**	**4**	**5**	**6**	**7**	**8**
$P(X = x)$	$\frac{1}{16}$						$\frac{1}{16}$

(ii) Calculate the probability of obtaining a sum of five or less. (2 marks)

(iii) Determine the mean and standard deviation for X. (2 marks)