Math 10B, Quiz 8

1. (12 points) Suppose you roll two 4-sided dice and each time you record the sum of the two rolls. You repeat this 49 times and obtain the following data:

Value	Observed frequency
2	7
3	7
4	7
5	7
6	7
7	7
8	7
Total	49

Perform a χ^2 test on the hypothesis that both dice are fair.

2. (1 point) Suppose you perform some experiment 5 times and collect the following results: 4, 8, -2, 2, 3. Then the sample mean is 3 and the sample variance is 13.

   ○ True   ○ False

3. (1 point) Suppose you have perform a χ^2 test on same data and get a χ^2 value of 100 with 9 degrees of freedom. You do not have enough evidence to reject the null hypothesis at the 5% significance level.

   ○ True   ○ False

4. (1 point) A student performs a χ^2 test for independence for the random variables X and Y on the following data:

	$X = 0$	$X = 1$
$Y = 0$	300	100
$Y = 1$	200	400

The student claims that the degrees of freedom is 3 since there are 4 possible outcomes and the degrees of freedom is always number of outcomes $- 1$. The student's answer is:

   ○ Too low

   ○ Correct

   ○ Too high