AP Statistics   NAME_____
Chapter 11 Review
Chi Square Hypothesis Test

1.) Each observation in a random sample of 100 bicycle accidents resulting in death was classified according to the day of the week on which the accident occurred. Data consistent with information given on the website www.highwaysafety.com are given in the following table:

Day of the week	Sun	Mon	Tue	Wed	Thu	Fri	Sat
# of deaths	14	13	12	15	14	17	15

Based on these data, is it reasonable to conclude that the proportion of accidents is not the same for all days of the week? Use $\alpha = .05$

2.) According to the census bureau data in 1998 the California population consisted of 50.7% whites, 6.6% blacks, 30.6 Hispanics, 10.8% Asians, and 1.3% other ethnic groups. Suppose that a random sample of 1000 students graduating from California colleges and universities in 1998 resulted in the following data on ethnic group:

Ethnic Group	White	Black	Hispanic	Asian	Other
# in Sample	679	51	77	190	3

Do these data provide evidence that the proportion of students graduating from California colleges and universities for these ethnic group categories differs from the respective proportions in the population for California? Test the appropriate hypothesis using $\alpha = .01$

3.) The data on drinking behavior for independently chosen random samples of male and female college students is given below. The data comes from a study done in the *Journal of College Student Development*. Does there appear to be a gender difference with respect to drinking behavior?

Gender

Drinking level	Male	Female	Total
None	140	186	**326**
Low	478	661	**1139**
Moderate	300	173	**473**
High	63	16	**79**
Total	**981**	**1036**	**2017**

4.) In the article "Television Viewing and Physical Fitness in Adults" (*Research Quarterly for Exercise and Sport* 1990) the author hoped to determine whether time spent watching TV is associated with cardiovascular fitness. Subjects were asked about their TV viewing time (per day, rounded to the nearest hour) and were classified as physically fit if they scored in the excellent or very good category on a step test. Using the data collected, is there an association between TV viewing and cardiovascular fitness. Use $\alpha = .01$

Fitness

TV viewing time	Physically Fit	Not Physically Fit	Total
0	35	147	**182**
1-2	101	629	**730**
3-4	28	222	**250**
5 or more	4	34	**38**
Total	**168**	**1032**	**1200**