

## **STAT 110: The Chi-Square Distribution: Homework #7**

### **EXERCISE 1**

A 6-sided die is randomly rolled 120 times. Fill in the expected frequency column. Then, conduct a complete hypothesis test to determine if the die is fair. The data below are the result of the 120 rolls.

<b>face value</b>	<b>frequency</b>	<b>expected frequency</b>
1	15	
2	29	
3	16	
4	15	
5	30	
6	15	

**EXERCISE 2**

The marital status distribution of the U.S. male population, age 18 and older, is as shown below. (Source: U.S. Census Bureau, *Current Population Reports*)

Marital Status	Percent	Expected Frequency
never married	31.3	
married	56.1	
widowed	2.5	
divorced/separated	10.1	

Suppose that a random sample of 400 U.S. young adult males, 18 – 24 years old, yielded the following frequency distribution. We are interested in whether this age group of males fits the distribution of the U.S. adult population. Conduct an appropriate hypothesis test to see if there is evidence that this distribution does not “fit” the known distributions above. (rounding to two decimal places)

Marital Status	Frequency
never married	140
married	238
widowed	2
divorced/separated	20