Name:Math 130 Day 23 In Class WorksheetDate:Sections 12.2 part 2 and 13.1: The Homogeneity of Proportions Test and One-Way ANOVA

1. Family Structure and Sexual Activity A sociologist wants to discover whether the sexual activity of females between the ages of 15 and 19 years and family structure are associated. She randomly selects 400 females between the ages of 15 and 19 years and asks each to disclose her family structure at age 14 and whether she has had sexual intercourse. The results are shown in the table below. Data are based on information obtained from the National Center for Health Statistics. Test the claim that the proportion of females between the ages of 15 and 19 who have had sexual intercourse is the same for the various family structures listed at the $\alpha = 0.05$ significance level.

Family Structure

		Both Biological				
		or Adoptive Single		Parent and	Nonparental	
	Parents		Parent	Stepparent	Guardian	
Had Sexual	Yes	64	59	44	52	
Intercourse	No	86	41	36	18	

2. Lowering LDL Cholesterol To test which method is most effective at lowering LDL cholesterol, 20 people participated in an experiment. First, the LDL cholesterol level of each person was measured. Then the 20 people were randomly divided into 3 groups. The subjects in group 1 were instructed to follow a certain exercise routine for a year. The subjects in group 2 were instructed to take a certain cholesterol lowering medication each day for a year. The subjects in group 3 were instructed to follow a certain diet for a year. At the end of the year, the LDL cholesterol level of each person was measured again. The amount that the LDL cholesterol level dropped for each person is summarized in the following table:

Amount of LDL drop								
Exercise	8	10	13	3	5	0	5	7
Medication	10	12	12	8	9			
Diet	4	8	5	3	5	7	6	

At the $\alpha = 0.05$ significance level, is their evidence that one of these methods is different than the others in its effectiveness to reduce a person's LDL cholesterol?