

Name _____

11-8B Lesson Master

Questions on SPUR Objectives

See pages 708–711 for objectives.

USES Objective H

In 1–3, use the chi-square critical value table given below.

1. The president of the junior class surveyed all 549 members of the junior class to see whether more members of the class attended a particular homecoming event. Her results were as follows:

Event	Number of People Attending
Pep rally	36%
Dance	23%
Football game	41%

- a. Find the number of people attending each event.

Pep rally _____ Dance _____ Game _____

- b. The class president believes she can account for the data by assuming each event was attended equally. How many would she expect to attend each event?

Pep rally _____ Dance _____ Game _____

- c. Find the chi-square statistic for this experiment, using the actual numbers and the president’s expected numbers. _____

Critical Chi-Square Values				
$n - 1$.10	.05	.01	.001
1	2.71	3.84	6.63	10.8
2	4.61	5.99	9.21	13.8
3	6.25	7.81	11.34	16.3
4	7.78	9.49	13.28	18.5
5	9.24	11.07	15.09	20.5
6	10.6	12.6	16.8	22.5
7	12.0	14.1	18.5	24.3
8	13.4	15.5	20.1	26.1
9	14.7	16.9	21.7	27.9
10	16.0	18.3	23.2	29.6

- d. Refer to the Critical Chi-square Values table above. Using your answer to Part c, what can you conclude about the president’s assumption?

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2. In 2005, the U.S. Department of Labor reported the following results for three categories of their Consumer Expenditures Survey that asked Americans how they spend their income.

Category	Percent of Income Spent
Food at home	7%
Food away from home	6%
Entertainment	5%

a. Based on the Department of Labor survey, how much did the average family in the United States spend on each item in 2005 if the average annual expenditure was \$46,409?

Food at home _____ Food away from home _____ Entertainment _____

b. Amy assumed that the average family spent the same amount on each of these three items. How much does she assume they spend on each item?

Food at home _____ Food away from home _____ Entertainment _____

c. Find the chi-square statistic for this experiment, using the Department of Labor numbers and Amy's expected numbers. _____

d. Using your answer to Part c, what can you conclude about Amy's assumption?

3. Jason believes that the music club at his school consists of 10% freshmen, 20% sophomores, 30% juniors, and 40% seniors. This year there were 10 freshmen, 21 sophomores, 40 juniors, and 32 seniors in the club. Use the chi-square statistic to determine if Justin's assumption is correct.
