

Name _____

11-8A Lesson Master

Questions on SPUR Objectives

See pages 708–711 for objectives.

USES Objective H

In 1 and 2, use the following information and the chi-square critical value table given below.

A psychologist wanted to see whether people associated particular colors with pieces of music. She performed an experiment in which she played a piece of music and then asked each of the listeners which one of the following four colors they would associate with that piece. Her results were as follows:

Color	Percent of Listeners Choosing Color
Red	19%
Blue	21%
Green	24%
Yellow	36%

1. Suppose the psychologist’s sample size of listeners was 80 people.

a. Find the number of people choosing each color.

Red _____ Blue _____

Green _____ Yellow _____

b. The psychologist believes she can account for the data by assuming that there is no tendency for people to associate any one particular color with the music. How many people would she expect to choose each color?

Red _____ Blue _____

Green _____ Yellow _____

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

Critical Chi-Square Values				
$n - 1$	0.10	0.05	0.01	0.001
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

Name _____

11-8A

page 2

- d. Refer to the Critical Chi-Square Values table on the previous page. Using your answer to Part c, what can you conclude about the psychologist's assumption?

2. Suppose the psychologist's sample size of listeners was 200 people.

- a. Find the number of people choosing each color.

Red _____ Blue _____

Green _____ Yellow _____

- b. The psychologist believes she can account for the data by assuming that there is no tendency for people to associate any one particular color with the music. How many people would she expect to choose each color?

Red _____ Blue _____

Green _____ Yellow _____

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

- d. Refer to the Critical Chi-Square Values table on page 490. Using your answer to Part c, what can you conclude about the psychologist's assumption?

3. From your answers to Questions 1 and 2, what can you say about the relationship between sample size and the conclusions reached in the experiment?
