

**CHI-SQUARE TEST**  
(Homogeneity of Populations)

1. Market researchers know that background music can influence the mood and purchasing behavior of customers. One study in a supermarket in Northern Ireland compared three treatments: no music, French accordion music and Italian string music. Under each condition, the researchers recorded the number of bottles of French, Italian and other wine purchased. The data is summarized in the 2-way data below:

<b>WINE</b>	<b>MUSIC</b>		
	None	French	Italian
French	30	39	30
Italian	11	1	19
Other	43	35	35

Do the data provide convincing evidence that music influences the purchasing behavior of customers? Carry out an appropriate test at the  $\alpha = .05$  significance level.

2. A randomized, double-blind trial was conducted to determine how best to help smokers quit the habit. Below are the results of the study where a “success” means that the subject did not smoke for a year afterwards:

<b>TREATMENT</b>	<b>SUCCESS</b>	<b>FAILURE</b>
Nicotine Patch	40	204
Drug	74	170
Patch plus Drug	87	158
Placebo	25	135

- a. Make a graph to compare the success rates for the four treatments. Describe what you see.
- b. Do the data provide convincing evidence of a difference in the effectiveness of the four treatments? Carry out an appropriate test at the  $\alpha = .05$  significance level.