Chapter Exercises

Exercise 11.1

Check your answers against those in the ANSWER section.

The county commissioners received a number of complaints from county residents that the Youngsville Fire Department takes longer to respond to emergency runs than the Claredon Fire Department. To check the validity of these complaints, a random sample of 60 emergency runs handled by the Youngsville Fire Department was selected. It was found that the mean response time was 6.9 minutes and the standard deviation of the sample 3.8 minutes. A sample of 70 emergency runs handled by the Claredon Fire Department found the mean response time was 4.9 minutes with a sample standard deviation of 3.0 minutes. Does the data suggest that it takes longer for the Youngsville Department to respond? Use the 0.05 significance level.

Exercise 11.2

Check your answers against those in the ANSWER section.
A recent study was designed to compare smoking habits of young women with those of young men. A random sample of 150 women revealed that 45 smoked. A random sample of 100 men indicated that 25 smoked. At the 0.05 significance level does the evidence show that a higher proportion of women smoke? Compute the p-value.

Exercise 11.3

Check your answers against those in the ANSWER section.

A large department store hired a researcher to compare the average purchase amounts for the downtown store with that of its mall store. The information shown was obtained. At the 0.01 significance level can it be concluded that the mean amount spent at the mall store is larger? Estimate the p-value.

	Downtown Store	Mall Store
Average purchase amount	$36.00	$40.00
Sample standard deviation	$10.00	$12.00
Sample size	10	10

Exercise 11.4

Check your answers against those in the ANSWER section.

An independent government agency is interested in comparing the heating cost of all- electric homes and those of homes heated with natural gas. A sample of eight all-electric homes is matched with eight homes of similar size and other features that use natural gas. The heating costs for last January are obtained for each home.

At the 0.05 significance level is there reason to believe there is a difference in heating costs?

Matched Pair	Electric Heat	Gas Heat
1	265	260
2	271	270
3	260	250
4	250	255
5	248	250
6	280	275
7	257	260
8	262	260