- A survey of 1,500 Canadians reveals that 945 believe that there is too much violence on television. In a survey of 1,500 Americans, 810 believe that there is too much violence on television. Based on this data, can we conclude, at the 0.01 level, that Canadians and Americans differ with respect to the proportion of people who think that there is too much violence on television?

- The general manager of a chain of fast food chicken restaurants wants to determine the how effective their promotional campaigns are. In these campaigns "20% off" coupons are widely distributed. These coupons are valid for only one week. To examine their effectiveness, the executive records the daily gross sales (in $1,000s) in one restaurant during the campaign and during the week after the campaign ends. The data are shown below. Is this data enough evidence to conclude, at the 0.05 level, that sales increase during the campaign?

Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
During	18.1	10.0	9.1	8.4	10.8	13.1	20.8
After	16.6	8.8	8.6	8.3	10.1	12.9	18.9

- The owner of a service station wants to determine if owners of new cars (two years old or less) change their cars' oil more frequently than owners of older cars (more than two years old). From her records she takes a random sample of ten new cars and ten older cars and determines the number of times that the oil was changed in the last 12 months. She does not believe that the variances of the number of oil changes are equal, and would like to use a method that does not make the assumption that they are. Based on the data that follow, can does she have enough evidence to conclude that the new car owners do in fact change their oil more regularly, at the 0.05 level? (Assume that the data is normal.)

New Cars	6	3	3	3	4	3	6	5	5	4
Older Cars	4	2	1	2	3	2	2	3	2	1

- An investor is considering two types of investment. She is quite satisfied that the expected return on investment 1 is higher than that of investment 2. However, she is quite concerned that the risk associated with investment 1 is also higher than the risk associated with investment 2. To help make her decision, she randomly selects seven monthly returns on investment 1 and ten monthly returns on investment 2. She finds that the sample variances of the investments are 225 and 118, respectively. Is this enough evidence that the return on investment 1 does really vary more than the return on investment 2, at the 0.10 level?

- Because of the rising costs of industrial accidents, many chemical, mining, and manufacturing firms have instituted safety courses. Employees are encouraged to take these courses designed to heighten safety awareness. A company is trying to decide whether to switch from their current class, to one that claims to better educate employees. To make the decision, they randomly choose sixteen employees, and have eight take each course. After the courses, each employee takes a test and is graded out of a possible 25 points. The results are shown below. Assume that these scores come from a normal distribution and that the company is comfortable assuming that the variances are the same. Based on this data, can the company conclude, at the 0.05 level, that the new course is better than their current course?

Current	14	21	17	14	17	19	20	16
New	20	18	22	15	23	21	19	15

- The table that follows shows the strengths of cables made from two different alloys. An engineering firm would like to know if it is possible, at the 0.05 level, to conclude that one of the alloys produces a stronger cable. It is known that the breaking strengths follow the same distribution, except for possible location differences, but the distribution is not normal. How would you advise the firm?

Alloy 1	18.3	16.4	22.7	17.8	18.9	25.3	16.1	24.2	
Alloy 2	12.6	14.1	20.5	10.7	15.9	19.6	12.9	15.2	11.8	14.7

- Thirty-five employees who completed two years of college were asked to take a basic mathematics test. The mean and standard deviation of their scores were 75.1 and 7.8, respectively. In a random sample of 50 employees who only completed high school, the mean and standard deviation of the test scores were 72.1 and 9.6, respectively. Can we conclude that as a group those who had two years of college scores better on average than those with no college, at the 0.10 level?