1. A survey firm conducts door-to-door surveys on a variety of issues. Some individuals cooperate with the interviewer and complete the interview questionnaire and others do not. The following data are available.   
Respondents Sample Size Number Cooperating   
Men 200 110   
Women 300 210

Give a 95% confidence interval estimate of the difference between the population proportions for women and men.

2. A bank has recently acquired a new branch and thus has customers in this new territory. They are interested in the default rate in their new territory. They wish to test the hypothesis that the default rate is different from their current customer base. They sample 200 files in area A, their current customers, and find that 20 have defaulted. In area B, the new customers, another sample of 200 files shows 12 have defaulted on their loans. At a 10% level of significance can we say that the default rates are the same or different?

3. Two college instructors are interested in whether or not there is any variation in the way they grade math exams. They each grade the same set of 10 exams. The first instructor’s grades have a variance of 52.3. The second instructor’s grades have a variance of 89.9. Test the claim that the first instructor’s variance is smaller. (In most colleges, it is desirable for the variances of exam grades to be nearly the same among instructors.) The level of significance is 10%.