1. Do younger people use Twitter more often than older people? In a random sample of 316 adult Internet users aged 18-29, 26% used Twitter. In a separate random sample of 532 adult Internet users aged 30-49, 14% used Twitter.

    a. Calculate the standard error of the sampling distribution of the difference in the sample proportions (younger adults – older adults). What information does this value provide?

    b. Construct and interpret a 90% confidence interval for the difference between the true proportions of adult Internet users in these age groups who use Twitter.

2. A surprising number of young adults (ages 19-25) still live in their parents' homes. A random sample by the National Institutes of Health included 2253 men and 2629 women in this age group. The survey found that 986 of the men and 923 of the women lived with their parents.

    a. Construct and interpret a 99% confidence interval for the difference in the true proportions of men and women aged 19-25 who live in their parents' homes.

    b. Does your interval from part (a) give convincing evidence of a difference between the population proportions? Explain.

3. The elderly fear crime more than younger people, even though they are less likely to be victims of crime. One study recruited separate random samples of 56 black women and 63 black men over the age of 65 from Atlantic City, New Jersey. Of the women, 27 said they "felt vulnerable" to crime; 46 of the men said this.

a. Construct and interpret a 90% confidence interval for the difference in the true proportions of black women and black men in Atlantic City who would say they felt vulnerable to crime.

b. Does your interval from part (a) give convincing evidence of a difference between the population proportions? Explain.

4. Are teens or adults more likely to go to McDonalds weekly? The Pew Internet and American Life Project asked a random sample of 799 teens and a separate random sample of 2253 adults how often they go to McDonalds. In these two surveys, 63% of teens and 68% of adults said that they go to McDonalds weekly. Construct and interpret a 90% confidence interval for the difference between adults and teens.