Homework 10
Due Wednesday, November 11

WMMY: Ch 9 # 53, 55, 57, 60, 62, 63

Problem A: Flip a coin 50 times and record the percentage of flips that came up heads.

      a.   Use this value to compute the 90% confidence interval for p, the probability of flipping heads.

      b.   Assume a coin flip actually has probability 0.5 of coming up heads. Assume all 30 students in this class actually do part (a) correctly (hah!) How many do we expect to report a confidence interval containing 0.5? What is the probability that all 30 students would report a confidence interval containing 0.5?

Problem B:

      a.   A weekly poll reaches 375 voters one week and 450 voters the next. Which week has the higher margin of error?

      b.   A different poll always includes the same number of voters. One week, 35% of voters answer yes to a question, another week 50% answer yes, and another week 60% answer yes. Which weeks have the lowest and highest margin of error?

Problem C:

      a.   Around major national elections, the news outlets always take polls of about 10000 people. Why? (Hint: what is the margin of error at 95% confidence?)

      b.   Suppose you wanted to predict a St. Louis City election to within a 1% margin of error (at 95% confidence). How many St. Louis voters would you need to poll?

      c.   Suppose you wanted to predict a SLU student election to within a 1% margin of error (at 95% confidence). How many SLU students would you need to poll?