Take home due on Tuesday April 27 at 6 pm.

1. A quarterback from a Big ten college football team worked to improve his proportion of completed passes. His career average had been 45% completed passes. His record halfway into the new season is 82 completed passes out of 169 attempted.

   a) Has his proportion of completed passes improved at a significant level of 5%? (3 points)

   b) Assume now that he completed 90 passes out of 169 attempted. What is now your conclusion? (2 points)

   c) Extra credit (2 points): How many passes out of 151 should he have completed in order to demonstrate significant improvement at $\alpha = 0.01$?

2. In a random sample of 950 students from a large public university, it was found that 444 of the students changed majors during their college years.

   a) Give a 95% confidence interval for the proportion of students who changed majors. (3 points)

   b) Explain your results to somebody that does not know any statistics. (2 points)