Name:

MATH 321: In-Class 6

1. A NatGeo Poll interviewed 1200 hiking enthusiasts and asked "Are you more afraid of spiders or snakes??" Out of the 1200 people, 768 responded "Ewww, snakes..."

   (a) Check the conditions for a confidence interval for the true proportion p of hikers who are more afraid of snakes.

   (b) Calculate a 95% confidence interval for p.

   (c) Calculate a 90% lower-bound confidence interval for p and a 90% upper-bound confidence interval for p.

2. The poll from (1) also asked 1100 climbers the same question. 662 of the 1100 climbers, responded "Ewww, snakes...."

   Calculate a 92% confidence interval for the difference in proportion of climbers vs hikers who are more afraid of snakes than spiders. State the conclusion as well.

3. 15 out of 23 people from a random sample said their National Championship team is still remaining in their NCAA March Madness Bracket.

   Calculate a 85% confidence interval for the true proportion p of brackets that still have their National Championship team remaining.

4. For a comparison of the rates of defectives produced by two assembly lines, independent random samples of 100 items were selected from each line. Line A yielded 18 defectives in the sample, and line B yielded 12 defectives.

   Find a 98% confidence interval for the true difference in proportions of defectives for the two lines AND state a conclusion if one line produces a higher proportion of defectives than the other.

5. From a random sample 500 people, 64% said they prefer to vacation at the beach compared to the mountains.

   (a) Calculate a 93% confidence interval for the true proportion p of people who prefer beaches over mountains for vacation.

   (b) If the sample size was increased to 600 people and all else remains constant, what will happen to the new confidence interval? Calculate this new interval.

   (c) If the confidence level for the interval from (a) changed to 90% confident, what will happen to the new confidence interval? Calculate this new interval.