Practice Exam 3

Name:_____

1: A person tosses a coin 100 times and gets 40 heads. Give a 95% Binomial exact confidence interval for the proportion of heads from tosses of this coin.

2: A person tosses a coin 100 times and gets 40 heads. Use the normal approximation to the Binomial distribution to give a 95% confidence interval for the proportion of heads from tosses of this coin.

3: Say you want to conduct a poll to measure the proportion of Americans who drink instant coffee most mornings. How many people do you need to poll in order to ensure that the 95% confidence interval for this proportion has margin of error of no more than 2 percentage points.

4: The makers of Claritin claim that drowsiness on Claritin is similar to drowsiness with a placebo. They cite a study that reports that 8% of 1926 Claritin takers and 2545 placebo takers reported drowsiness as a side effect.

A: Test the claim that Claritin does not increase drowsiness over the placebo.

B: Give the appropriate 95% one-sided confidence interval for the difference that corresponds to the question of interest.

5: Students in a statistics course at IU were asked how many minutes a week they exercised. The study wanted to determine if there was a difference between men and women. A sample of the data is included below:

men	60	360	100	120	...
women	0	120	150	300	...

Is the test:

 MATCHED PAIRS   INDEPENDENT SAMPLES

Is the test:

 ONE SIDED   TWO SIDED

Are the data

 OBSERVATIONAL   EXPERIMENTAL

6: Researchers speculate that drivers who choose to wear their seat belt do not speed as much as drivers who choose not to wear their seat belt. The researchers clocked the speed and whether a driver was wearing a seat belt or not for 100 cars in a row from an overpass at a local highway one afternoon. A sample of the data is included below:

driver	1	2	3	4	...
speed	65	85	79	64	...
Seatbelt	Y	N	Y	Y	...

Is the test:

MATCHED PAIRS   INDEPENDENT SAMPLES

Is the test:

ONE SIDED   TWO SIDED

Are the data

OBSERVATIONAL   EXPERIMENTAL

7: A Gallup poll taken on a random sample of Canadian adults in February 2000 asked: Do you favor or oppose marriages between people of the same sex? Out of 1003 respondents, 431 were in favor of such marriages.

A: Test whether or not the true proportion of Canadians who favor marriages between same-sex couples is 50%.

B: Give a 95% confidence interval for the proportion of Canadians who favor marriages between same-sex couples based on the results of this poll.

8: A random sample of 12 students at a particular college found that they spent an average of $315 on textbooks that semester with a standard deviation of $85.

A: Test whether or not the students at this school likely spent more than the national average of $275.

B: Give the appropriate 95% one sided confidence interval corresponding to the question in part A.

9: A random sample of 12 students at a particular college found that they spent an average of $315 on textbooks that semester with a standard deviation of $85. A random sample of 21 students at a second college found that they spend an average of $250 on texts that semester with a standard deviation of $150. Test whether or not the students at the two schools spent different amounts on texts that semester clearly stating and justifying your choice of test statistic.