In a large class, the professor has each person toss a coin 200 times and calculate the proportion of his or her tosses that were heads. The students then report their results, and the professor plots a histogram of these several proportions. Use the 69-95-99.7 rule to provide the appropriate response.

1. About 68% should have proportions between what two numbers?
2. About 95% should have proportions between what two numbers
3. About 99.7% should have proportions between what two numbers?

Based on past experience, a bank believes that 5% of the people who receive loans will not make payments on time. The bank has recently approved 300 loans. ( use to answer 4,5,6)

1. What is the mean of the proportion of clients in this group who may not make timely payments?
2. What is the standard deviation of the proportion of clients in this group who may not make timely payments?
3. What is the probability that over 8% of these clients will not make timely payments?
4. A survey found that 89% of a random sample of 1024 American adults approved of cloning endangered animals. Find the margin of error for this survey if we want a 90% confidence in our estimate of the percent of American adults who approve of cloning endangered animals.
5. A survey of 300 union members in New York State reveals that 112 favor the Republican candidate for governor. Construct a 98% confidence interval for the percentage of all New York State union members who favor the Republican candidate.
6. A pollster wishes to estimate the true proportion of U.S. voters who oppose capital punishment. How many voters should be surveyed in order to be 95% confident that the true proportion is estimated to within 5%?
7. A manufacturer wishes to estimate the proportion of washing machines leaving the factory that is defective. How large a sample should she check in order to be 90% confident that the true proportion is estimated to within 1.5%
8. A poll of 2841 likely voters indicated that 70% would vote in favor of a proposed constitutional amendment. The margin of error for this poll was 2%. What confidence level did the polster use?
9. In a poll of 553 voters in a certain city, 64% said the back a bill which would limit growth and development in their city. The margin of error in the poll was reported as 4 percentage points ( with a 95% degree of confidence). Which statement (s) is (are) correct
10. The reported margin of error is consistent with the sample size.
11. The sample size is too small to achieve the stated margin of error.
12. The sample size is too large to achieve the stated margin of error
13. For the given sample size, the margin of error should be smaller than stated
14. There is not enough information to determine whether the margin is consistent with the sample size.
15. 3% of trucks of a certain model have needed new engines after being driven between 0 and 100 miles. The manufacturer hopes that the redesign of one of the engine’s components has sloved this problem. Write a null hypothesis you could use to test this situation

Ho:

Ha:

1. A newspaper is considering the launch of an online edition. The newspaper plans to go ahead only if it’s convinced that at least 40% of current readers would subscribe. The news paper contacts a simple random sample of 1500 current subscribers, and 610 of those surveyed expressed interest. What should the company do? Test an appropriate hypothesis and state you conclusion. Be sure the appropriate assumptions and conditions are satisfied before you proceed.

Conditions:

 Ho: HA

Zo= p-value=

Conclusion (decision):

1. An airline public relations department says that the airline rarely loses passengers luggage. It further claims that on those occasions when luggage is lost, 92% is recovered and delivered to its owner within 24 hours. A consumer group who surveyed a large number of air travelers found that only 145 out of 165 people who lost luggage on that airline were reunited with the missing items by the next day. Does this cast doubt on the airlines claim?

Ho: HA:

P hat= Z0=

Conclusion (decision):