

1. Suppose the president's approval rating is 45%. If you pick 500 voters randomly, what is the probability that less than 220 approve of the president? Use the normal distribution to approximate this binomial probability.
2. You survey 500 people and find that 271 of them approve of Obama's job in office. Construct a 97% confidence interval for Obama's approval rating.
3. What sample size would be required for a 3% margin of error for the proportion which is estimated in problem 2, but this time with 95% confidence?
4. The annual precipitation amounts for 25 randomly selected years in Iowa appear to be normally distributed with a mean of 28.21 in. and an assumed population standard deviation of 6.74 in. Construct a 94% confidence interval for the population mean.
5. Using the data from #3 as a pilot study, what sample size would be required for a 0.3 inch margin of error, with 98% confidence?
6. Construct a 95% confidence interval for the mean weight of M&M candies. Sample data include the weights 8 M&M candies: {0.903, 0.920, 0.861, 1.009, 0.971, 0.898, 0.942, 0.897}. Research shows that the distribution of M&M weights is approximately normal.