1) In order to reduce the sample standard deviation by a half, you must quadruple the sample size.

2) An observed effect so large that it would rarely occur by chance is known as statistically significant.

10) When the sample size increases it reduces the variability, makes the results more precise, and reduces the standard error.

11) As sample size increases, the confidence interval becomes narrower.

12) As the confidence percentage increases, the confidence interval becomes wider.

13) As the margin of error increases, the confidence interval will become wider.

14) How to make a confidence interval narrower and more precise (a good thing): increase the sample size, or decrease your confidence percentage.

19) As standard deviation increases, the confidence interval becomes wider.

21) When a sample size is unusually small the results of the test may be misleading. (More likely to make an error).
22) It is always a good thing in statistics to increase the sample size but not to the point where it becomes too expensive or difficult.

28) We use the sample mean to estimate the population mean not vice versa.

29) The population mean is typically not known; that is why we use the sample mean to estimate the population mean. Hypothesis tests and confidence intervals accomplish this. CI's give us a range of values with a probability.

30) The margin of error for a confidence interval is affected by the sample size and confidence level. Sample size goes up, margin of error goes down (a good thing). Confidence level (ie 95%) goes up, margin of error goes up, interval gets wider.

31) The margin of error is not necessarily affected by under-coverage bias or non response bias.

32) An outlier can have a bad affect on a confidence interval and a hypothesis test... in other words outliers may cause a decrease in accuracy of a confidence interval or hypothesis test results. Outliers can mess up your conclusion. Cause a Type 1 error.

36) Increasing the sample size does not affect the mean of the sampling distribution.

37 "we are 95% confident that the true (proportion/average) of ______ that ______ will be within the interval of between ___ and ___.

95% confidence interval: 95% of time contains population parameter, 5% it does not.
40) As sample size increases, confidence interval width decreases.

41) As C, (confidence %) increases, confidence interval width increases and margin of error increases.

42) As sample size decreases, the standard deviation of the sampling distribution would increase but the mean of the sample distribution would stay the same. (Mean not affected by an increase in the sample size, etc.)

43) The two conditions required for a confidence interval to be valid:
   a. Data randomly selected from the target population.
   b. Need an approximately normal distribution.

46) When sample size increases... variability of sample means decreases
(sample results are more precise... confidence interval more narrow, etc)

* The standard deviation of the sample mean (σₓ) decreases as sample size increases.

If results of hyp. test are "significant" then we Reject Ho

Higher confidence % ... gives you a higher margin of error
Margin of error: In a confidence interval, the extent of the interval on either side of the observed statistic value is called the margin of error. A margin of error is typically the product of a critical value from the sampling distribution and a standard error from the data. A small margin of error corresponds to a confidence interval that pins down the parameter precisely. A large margin of error corresponds to a confidence interval that gives relatively little information about the estimated parameter. For a proportion, $ME = z^* \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$

♦ Critical value: The number of standard errors to move away from the mean of the sampling distribution to correspond to the specified level of confidence. The critical value, denoted $z^*$, is usually found from a table or with technology.

♦ Null hypothesis: The claim being assessed in a hypothesis test is called the null hypothesis. Usually, the null hypothesis is a statement of no change from the traditional value, "no effect," "no difference," or no relationship." For a claim to be a testable null hypothesis, it must specify a value for some population parameter that can form the basis for assuming a sampling distribution for a test statistic.

Alternative hypothesis: The alternative hypothesis proposes what we should conclude if we find the null hypothesis to be unlikely.

Two-sided alternative (Two-tailed alternative): An alternative hypothesis is two-sided when we are interested in deviations in either direction away from the hypothesized parameter value.

One-sided alternative (One-tailed alternative): An alternative hypothesis is one-sided when we are interested in deviations in only one direction away from the hypothesized parameter value.

♦ ♦ P-value: The probability of observing a value for a test statistic at least as far from the hypothesized value as the statistic value actually observed if the null hypothesis is true. A small P-value indicates either that the observation is improbable or that the probability calculation was based on incorrect assumptions. The assumed truth of the null hypothesis is the assumption under suspicion.

One-proportion z-test: A test of the null hypothesis that the proportion of a single sample equals a specified value by referring the statistic $z = \frac{\hat{p} - p_0}{SD(p)}$ to a Standard Normal model.