Top Ten Phrases to Memorize for AP Statistics...
now you have all 10!

Underlined words/phrases or blanks indicate context is needed.

Describe the distribution: SOCS
1. Always describe the distribution using SOCS!
   - Shape (unimodal, bimodal, uniform, symmetrical, approx. normal, skew)
   - Outliers/Gaps (justify with 1.5*IQR rule; mention any gaps in the data)
   - Center (is it best to use the mean or median for the data set)
   - Spread (range & standard deviation or compare the variability of 2 data sets)

Regression: interpretation, in context, of
2. ***r*** – positive or negative, weak or strong linear association between <u>explanatory variable</u> and <u>response variable</u>

3. ***r²*** – x percent of the variation in the <u>response variable</u> can be explained by the approximate linear relationship with the <u>explanatory variable</u>.

4. **slope** – for every <u>1 unit</u> increase in the <u>explanatory variable</u>, our model predicts an average increase of <u>y units</u> in the <u>response variable</u>.

5. **y-intercept** – at an <u>explanatory variable</u> value of 0 <u>units</u>, our model predicts a <u>response variable</u> value of <u>y units</u>. (Does this make any sense?)

Confidence Intervals: interpretation, in context, of
6. **confidence interval** – I'm __% confident that the population proportion/mean of _____ is between _____ and _____.
   - or -

   I am __% confident that the interval (____, ____) captures the true proportion/mean of _____.

7. **confidence level** – If this poll/experiment were repeated many times, then about ____% of the resulting confidence intervals would contain the true proportion/mean of _____.

   ***NOTE: <u>DO NOT SAY</u>**: "There is a ___% probability that the true mean falls in the interval from ____ and ____."
   This is incorrect because we interpret probabilities as long-run relative frequencies. For this statement to be true, the true mean would need to be in the interval 95% of the time and not in the interval 5% of the time. Since the true mean is constant, it either IS in the interval or it isn't!

Hypothesis Tests: null hypotheses and interpretation, in context, of results:

8a. One-sample null hypothesis (Ho) – The [proportion/mean] of <u>variable</u> is equal to (**not** different from) a [known/assumed proportion/mean].

8b. Two-sample null hypothesis (Ho) – The [proportion/mean] of <u>variable1</u> is equal to   (**not** different from) the [proportion/mean] of <u>variable2</u>.

9. ***p*-value** – <u>p-value</u>% is the probability of getting a [proportion/mean] of <u>variable</u> as extreme or more extreme than the one observed if the <u>null hypothesis</u> is correct.

10a. **reject the null hypothesis** – At the <u>alpha</u>% of significance, there is convincing evidence that the <u>alternative hypothesis</u> is true. *(in context)*

10b. **fail to reject the null hypothesis** – At the <u>alpha</u>% of significance, there is **not** convincing evidence to reject the <u>null hypothesis</u> (or to conclude that the <u>alternative hypothesis</u> is true). *(in context) Remember, you have not proved the null hypothesis is true—just failed to prove it false!*