Review for Midterm 2 (1070, Fall 2005).
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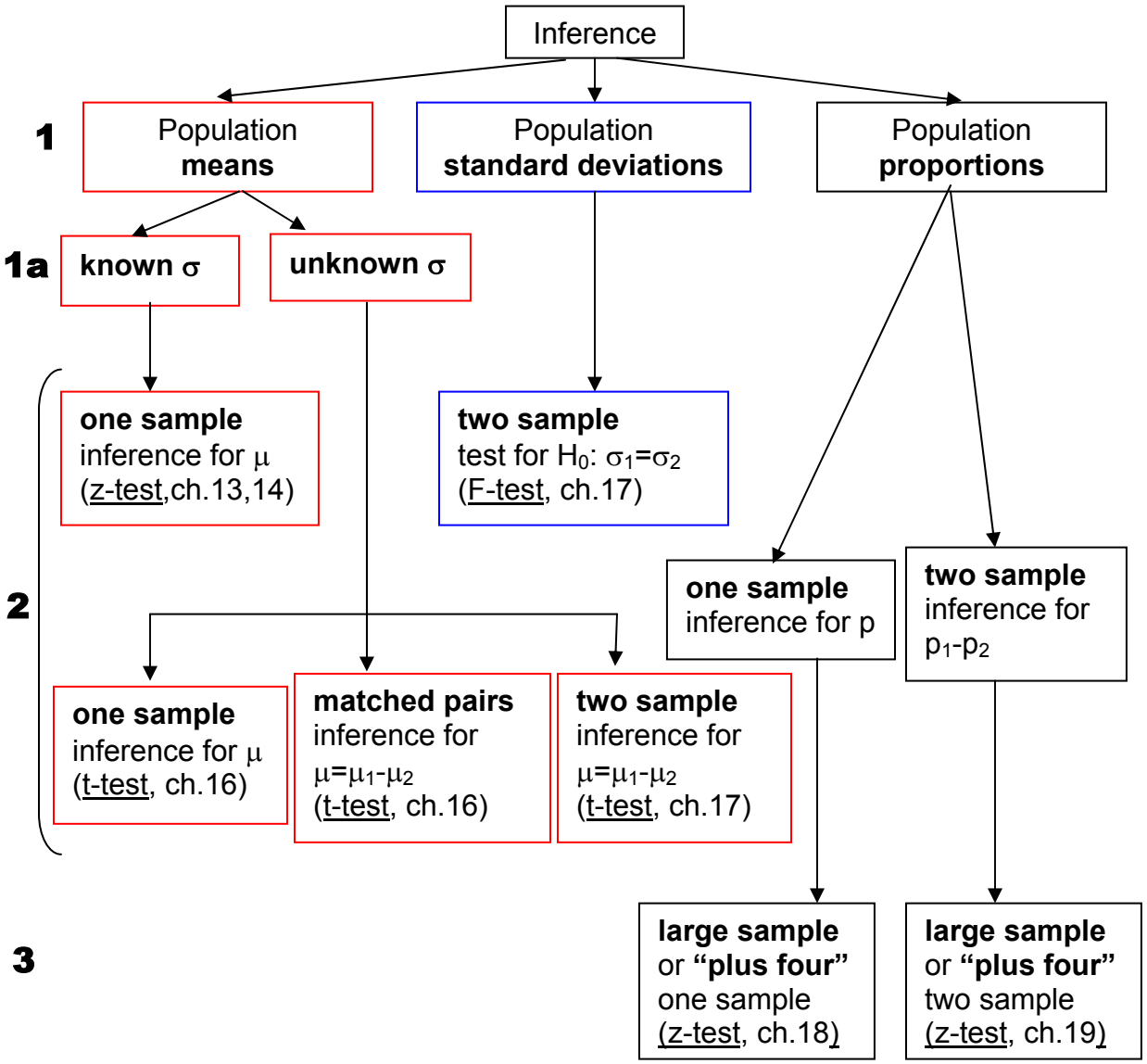

In each case the problem may ask for **Tests of significance** or for **a Confidence interval** or for **Conditions of using** the inference procedure

Confidence interval problems for one sample means and proportions can also ask for the **sample size with fixed margin of error**

You need to be able to

1. recognize what the problem is asking for
2. perform necessary computations
3. interpret (say in plain English) what your results mean (either what the confidence interval means or the results of significance test)

The following are examples of how the same question may be asked differently in the tests of significance problems:
- Is the difference between average scores of two groups statistically significant?
- Is there strong evidence that the average scores are different in the two groups?
- Test the null hypothesis that the average scores are the same in both groups against the alternative that they are different.
- Test the null hypothesis that the average scores are the same in both groups against a two-sided alternative
- Is there a good reason to think that the average scores in two groups are really different?

When you get the result of the test of significance give your answer both in terms of whether the null hypothesis should or should not be rejected AND in plain words, answering the question posed in the problem. The following conclusions are all equivalent (pick one of them depending on what the question is asking for):
- $P < \alpha$
- Data is significant at the level α
- The null hypothesis should be rejected at the significance level α
- There is significant difference between the data and the null hypothesis
- There is significant evidence against [*the null hypothesis*]
- There is significant evidence for [*the alternative*]

The opposites of these statements are also equivalent to each other:
- $P > \alpha$
- Data is **not** significant at the level α
- The null hypothesis should **not** be rejected at the significance level α
- There is **no** significant difference between the data and the null hypothesis
- There is **no** significant evidence against [*the null hypothesis*]
- There is **no** significant evidence for [*the alternative*]