AP STATISTICS • HOLIDAY HOMEWORK 假期作业

6 Hypothesis tests – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	**中文**	**Write it 3 times** (English)
hypothesis test	假设检验	

Recall

In Part A you estimated a value with a confidence interval. Now test a claim:

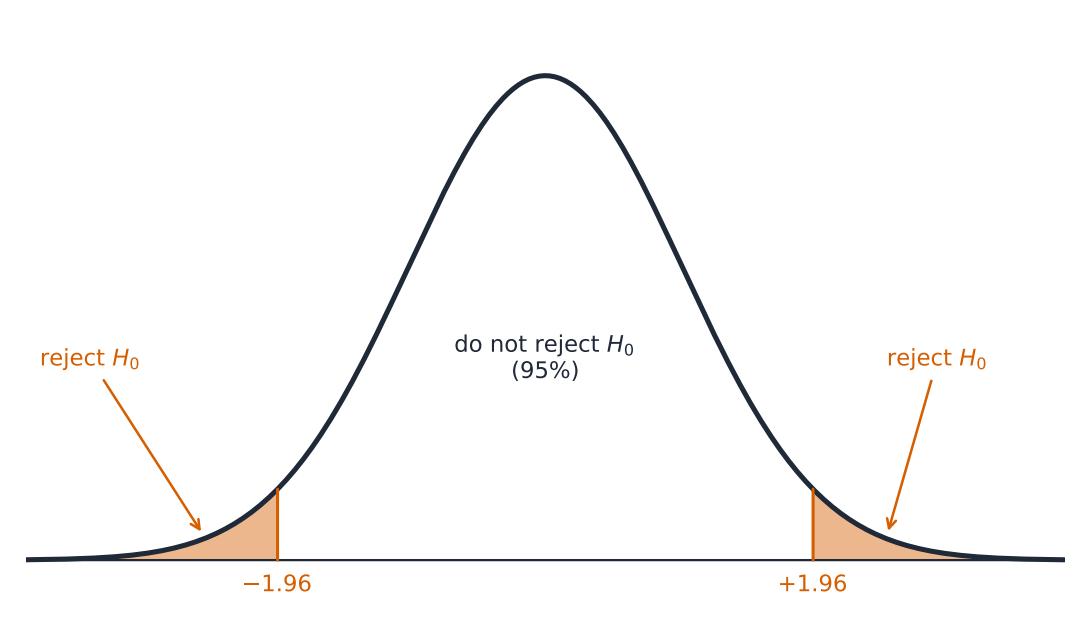
- Is a coin fair, or biased?
- Does the data give real evidence, or could it just be chance?

Each idea has a worked example before the Practice.

New ideas

■ 1 A hypothesis test

A **hypothesis test** 假设检验 weighs evidence against a claim. It starts with a **null hypothesis** –"nothing unusual is going on" (for example, the coin is fair).



2 The p-value

The **p-value** is the chance of getting data at least this extreme **if the null hypothesis were true**. A **small** p-value means the data would be surprising, which is evidence against the null.

3 The decision

If the p-value is below a chosen level (often 0.05), we **reject** the null hypothesis –the effect is ”statistically significant”. Otherwise we do not reject it.

Worked example. A coin gives 9 heads in 10 flips. If the coin were fair, that is very unlikely (small p-value), so we have evidence it is biased.

4 What it does not prove

Failing to reject the null does **not** prove it true –it just means there was not enough evidence against it.

Watch out: a small p-value means the data are **surprising if the null is true** –it does not directly give ”the probability the null is true”. And ”not significant” means ”not enough evidence”, not ”proven no effect”.

Practice

Try these in order. The methods are all above.

2.1 State what the null hypothesis usually represents. [2]

2.2 State what a p-value measures. [2]

2.3 State what a small p-value tells you. [2]

2.4 A test gives a p-value of 0.02 (below 0.05). State the decision. [1]

2.5 Explain why failing to reject the null does not prove it true. [2]