

6.5 Interpreting p-Values

Name: _____ Class: _____ Date: _____

Total: 8 marks

KEY WORDS p-value P 值 • null hypothesis 原假设

Objective

Build the skills to answer exam questions on **interpreting p-values**.

You must be able to:

- define a **p-value** as the probability of a result at least as extreme, **assuming H_0 is true**
- explain that a **small** p-value is evidence **against H_0**

1 Worked examples

Study these first. Each one shows the method for a question type used later.

■ What a p-value is

The **p-value** is the probability of getting a sample result **as extreme or more extreme** than the one observed, **assuming the null hypothesis is true**.

■ Interpreting it

- A **small** p-value means the observed data would be unlikely if H_0 were true → **evidence against H_0** .
- A **large** p-value means the data are consistent with H_0 .

2 Practice

2.1 Define a p-value.

[1]

2.2 State what a small p-value suggests.

[1]

2.3 State the assumption made when computing a p-value. [1]

3 Exam-style questions

3.1 A p-value is computed assuming [1]

A	B
C	D

A H_a is true

B H_0 is true

C the sample is biased

D nothing

3.2 A small p-value gives evidence [1]

A	B
C	D

A for H_0

B against H_0

C of bias

D of nothing

3.3 A test gives a p-value of 0.02.

(a) State what this value measures. [1]

(b) State whether it is strong or weak evidence against H_0 . [1]

(c) State the assumption behind it. [1]