AP STATISTICS • EXERCISE SHEET

9.6 Skills Focus: Selecting an Appropriate Inference Procedure

Name: _____ Class: _____ Date: _____ **Total: 8 marks**

KEY WORDS inference 推断 • regression 回归

Objective

Build the skills to answer exam questions on **selecting an appropriate inference procedure**.

You must be able to:

- choose the right procedure across proportions, means, chi-square, and slopes
- match the procedure to the data type and the question asked

1 Worked examples

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

Matching procedure to question

- **One/two proportions** — a categorical variable's proportion, or comparing two.
- **One/two means (t)** — a quantitative variable's mean, or comparing two.
- **Chi-square** — goodness of fit, homogeneity, or independence for categorical counts.
- **Slope (t)** — the relationship between **two quantitative** variables.

Then decide: **estimate** (confidence interval) or **test a claim** (hypothesis test).

Worked choices

"Confidence interval for the mean height" – quantitative, one sample, estimate → **one-sample t interval**. "Test whether exam score depends on hours studied (both numeric)" – a relationship between two quantitative variables → **slope t test**.

2 Practice

2.1 State which procedure to use for a single population mean. [1]

2.2 State which procedure to use for the relationship between two quantitative variables. [1]

2.3 State how to decide between a confidence interval and a hypothesis test. [1]

3 Exam-style questions

3.1 Inference about the relationship between two quantitative variables uses a test for the [1]

A proportion
B mean
C slope
D chi-square statistic

3.2 To test whether one categorical variable matches a claimed distribution, use a [1]

A t-test
B chi-square goodness-of-fit test
C slope test
D z-interval

3.3 A study asks whether hours studied predicts exam score.

(a) Name the type of variables. [1]

(b) Name the inference procedure. [1]

(c) State the null hypothesis. [1]