

The rubric on this exam awards components, not sentences. Almost every lost point is a component that was nearly satisfied – a condition unverified, a conclusion without context, a parameter not defined. Everything below is a rule the readers actually apply. 本科按 “得分要素” 评分, 失分多是差一步: 条件没验证、结论没结合情境、参数没定义。

How the rubric reads your answer

- ✗ Writing ‘yes’ or ‘no’ as the answer to a choice question.
- ✓ **Name the choice and give the statistical reason for it.**

The guidelines state a bare yes or no is not sufficient to indicate a choice.

只写 “是/否” 不得分

SG2019 Q5
- ✗ Showing the final number of a calculation with nothing behind it.
- ✓ **Show the formula with the numbers substituted, or at least two terms of the sum.**

The readers require actual numbers, or a formula with numbers plugged in, to satisfy the component.

要写出代入数字的算式

SG 4 years
- ✗ Panicking over an arithmetic slip and starting again.
- ✓ **Keep going. An arithmetic or transcription error is ignored WHEN the correct work is shown.**

Stated explicitly in the additional notes of several years’ guidelines.

过程正确, 算错可忽略

SG 3 years
- ✗ Rounding a slope of 3.7455 to 4.
- ✓ **Keep enough figures to be recognisable: 3.746, 3.75 or 3.7 are accepted, 3 and 4 are not.**

The guidelines give exactly this list – over-rounding destroys the numerical requirement.

不要过度取整

SG2022 Q1

■ Answer in the units the question uses. A response about a population PERCENTAGE must use percentages; one about a PROPORTION must use proportions.

百分数与比例不要混用

SG2021 Q4
- 3 · Collecting Data 收集数据
- ✗ Saying a sampling method is ‘biased’ and stopping.

✓ **Name the direction: ‘richer people are more likely to respond, so income will be overestimated.’**

The readers accept either direction, but it must be stated and must be consistent with the bias identified.

要说明偏差的方向

SG2018 Q3
- AP Statistics · Common Mistakes 常见错误
- 1
- ✗ Describing a random selection without saying numbers are not reused.

✓ **State it: ‘ignore repeats’ or ‘select without replacement’.**

The guidelines state a response that does not indicate selection without replacement does not satisfy the component.

要写明不放回抽样

SG2016 Q2

✗ Describing a randomisation with slips of paper and not saying what is written on them.

✓ **Say how many slips carry each treatment label.**

To satisfy the component some slips must be labelled or assigned to represent each treatment.

要写清纸条上标什么

SG2019 Q3

✗ Claiming an advantage of a matched-pairs design that a completely randomised design also has.

✓ **Name something only pairing gives: it removes the variability between subjects.**

The guidelines require the stated advantage to be true for matched pairs and NOT true for a completely randomised design.

配对设计的优点要独有

SG2017 Q4

✗ Explaining a result by ‘a confounding variable’ with no variable named.

✓ **Name a plausible one and say how it would affect both variables.**

The readers note a response may or may not identify a specific confounding variable – naming one is what makes the explanation complete.

要指出具体的混杂变量

SG2015 Q5
- 1 · Exploring One-Variable Data 探索单变量数据
- ✗ Describing a distribution with one feature.

✓ **Shape, centre, spread – and any outliers – in context.**

The rubric awards each separately, so a response naming only the shape scores one component of several.

形状、中心、离散都要写

CED 1.6

✗ Giving a standard deviation with no units or an implausible magnitude.

✓ **Check it against the data range: for that context the value had to lie between 25 and 100 square feet.**

The guidelines set an acceptable interval – a value outside it fails the component even if the method was right.

检查标准差是否合理

SG2020 Q1
- 2 · Exploring Two-Variable Data 探索双变量数据
- ✗ Interpreting a slope as ‘when x goes up, y goes up’.

✓ **Give the number, the units and the word ‘predicted’: each extra hour predicts an increase of 3.75 points.**

The rubric requires the numerical value with a clear interpretation in context.

斜率要写数值、单位和 “预测”

SG2022 Q1
- AP Statistics · Common Mistakes 常见错误
- 2

- ✗ Naming the response variable so loosely that it could mean something else.
- ✓ **Be specific: ‘the number of insects alive in the treated plot’, not ‘the number of insects alive’.**

The readers reject the vaguer wording because it could refer to the total number of insects.

变量描述要具体

SG2019 Q1
- ✗ Reversing the numerator of a z -score.
- ✓ $z = \frac{x - \mu}{\sigma}$ – **observed minus expected, in that order.**

The guidelines call this out as an error that, alone, is treated leniently but is poor communication when the response is scored holistically.

z 分数分子顺序不能反

SG2021 Q1

5 · Sampling Distributions 抽样分布

- ✗ Writing ‘the sample is large enough’ as the condition check.
- ✓ **Verify it with numbers: $np = 40 \geq 10$ and $n(1 - p) = 60 \geq 10$.**

The guidelines state that stating the large-sample condition without verification is not sufficient.

条件要用数字验证

SG2019 Q4
- ✗ Checking a condition that does not apply to the procedure.
- ✓ **Check the conditions of the test you are running, and no others.**

The readers treat an inappropriate check as a fault, not as harmless extra work.

只检查该检验的条件

SG2019 Q4
- ✗ Asserting independence because the sample is random.
- ✓ **State the 10% condition: the population must be at least ten times the sample.**

The guidelines require the population to be extremely large relative to the sample for the independence condition to be satisfied.

独立性要用 10% 条件

SG2021 Q5

6 · Inference for Categorical Data: Proportions 分类数据的推断：比例

- ✗ Writing H_0 and H_a with no words and no context.
- ✓ **Define the parameter first: ‘ p = the proportion of ALL students at this school who...’**

The components may be satisfied without a symbol, but the parameter and its population have to be identifiable.

先定义总体参数

SG2023 Q4
- ✗ Stating one alternative hypothesis and computing a p -value for a different one.
- ✓ **Keep them consistent – a one-sided H_a takes a one-sided p -value.**

The guidelines state that where an incorrect alternative is given, the p -value must still be consistent with it.

备择假设与 p 值要一致

SG 4 years

- ✗ Comparing a two-sided confidence interval with a one-sided test.
- ✓ **Match them: a one-sided test at 5% corresponds to a 90% two-sided interval.**

The readers set out exactly which interval is accepted for which test.

区间与检验的侧数要对应

SG2021 Q4
- ✗ Naming the test but also writing a formula that belongs to another one.
- ✓ **Name it and write its own formula, or write neither.**

The guidelines state that a correct name with an incorrect formula does not satisfy the component.

名称与公式要一致

SG2020 Q5

7 · Inference for Quantitative Data: Means 定量数据的推断：均值

- ✗ Ending a test with ‘reject H_0 ’.
- ✓ **Add the conclusion in context: ‘there is convincing evidence that the mean drying time is less than 30 minutes.’**

The decision and the contextual conclusion are separate components, and an inconsistent pair fails both.

判断之后要写情境结论

SG 4 years
- ✗ Writing that the test ‘proves’ the claim.
- ✓ **Say there is, or is not, convincing evidence.**

A test provides evidence; the rubric’s wording is what the reader looks for.

只能说 “ 有证据 ”

CED 7.2
- ✗ Discussing the accuracy or validity of the test where an inference was asked for.
- ✓ **Make the inference about the POPULATION, and say so.**

The guidelines state such a response does not satisfy the component unless it is clear the inference is about the population.

推断的对象是总体

SG2018 Q4

8 · Inference for Categorical Data: Chi-Square 分类数据的推断：卡方

- ✗ Reporting relative frequencies to one decimal place, or as vague fractions.
- ✓ **Report them accurately, and to at least the precision the rubric expects – 0.7 and 0.6, stated as such.**

The guidelines require numerical values for relative frequencies to be accurately reported to satisfy the component.

相对频率要准确报告

SG2022 Q1
- ✗ Calling counts ‘proportions’ without giving proportion values.
- ✓ **Use the word that matches the numbers you are giving.**

The readers require the values to match the term used – proportions need proportion values.

用词要与数值对应

SG2022 Q1

4 · Probability, Random Variables, and Probability Distributions 概率、随机变量与概率分布

✗ Writing an expected value as a single final number.

✓ **Show the pattern:** $1(0.68) + 5(0.2) + \dots$, **with at least two terms visible.**

The guidelines require at least two terms of the sum to show the pattern.

期望值要写出求和式 SG 3 years

✗ Using calculator shorthand with no boundaries stated.

✓ **‘normalcdf’ is accepted as the distribution, but the lower and upper bounds must be stated.**

The guidelines accept the notation and still require the boundary values.

写出上下限 SG2019 Q3

■ A sketch of the distribution with the region shaded is worth the seconds it takes. It shows the reader the boundary and the direction you intended.

画图标出所求区域 CED 4.9