

On this exam the points are for COMMUNICATION as much as for calculus: the integral you set up, the units you attach, the theorem you name. Everything below is a rule the readers actually apply. 本科评分看“表达”与“计算”并重：积分要写出来、单位要带上、定理要点名。

Presentation – where the points are won and lost

✗ Writing the numerical answer a calculator produced with nothing above it.

✓ **Write the definite integral or the derivative expression first, then the value.**

The guidelines state repeatedly that an answer with no supporting work does not earn the point, even when it is correct.

先写式子再写答案

SG 4 years

✗ Rounding an answer to two decimal places.

✓ **Give three places after the decimal point, by rounding or truncating.**

An inappropriately rounded answer does not earn the point – the three-place rule is on the exam’s own instructions.

小数保留三位

SG 5 years

✗ Writing the integral, then a different number, and hoping the reader follows.

✓ **Make the line from the integral to the value unbroken.**

The guidelines treat incorrect or unclear communication between the integral and the answer as scratch work, which is not scored.

式子与答案要对得上

SG 4 years

✗ Writing a fraction with an ambiguous bar, or omitting brackets.

✓ **Make the fraction bar span exactly what it should, and bracket every substituted expression.**

The guidelines state parentheses must be used correctly and fraction bars clearly and correctly proportioned.

括号和分数线要清楚

SG 3 years

✗ Crossing nothing out and leaving two attempts on the page.

✓ **Cross out what you do not want read. Scratch work is not scored, but a contradiction is.**

Where a response presents a correct value alongside an incorrect one, the readers are not free to choose the right one.

不要的过程要划掉

SG 3 years

✗ Panicking after an arithmetic slip.

✓ **Carry on. A later point can still be earned from an earlier wrong value used correctly.**

The guidelines award subsequent points on consistent use of a candidate’s own value, and treat arithmetic slips after a correct solution as scratch work.

算错也要继续做

SG 3 years

1 · Limits and Continuity 极限与连续性

✗ Evaluating a limit by substitution and writing 0/0 as the answer.

✓ **Recognise the indeterminate form, then factor, rationalise, or apply L'Hospital's Rule.**

The guidelines award a point for USING the rule, separately from the answer, so the method has to be visible.

0/0 要继续处理

SG 3 years

✗ Asserting a function is continuous and using a theorem.

✓ **Justify the continuity first – the readers do not accept an unjustified statement.**

A response that simply states a function is continuous without justification does not earn that point.

连续性要先说明理由

SG2023

✗ Applying the Intermediate Value Theorem without checking its conditions.

✓ **State that the function is continuous on the closed interval and that the value lies between the endpoints.**

The readers do not require the theorem to be NAMED, but if it is named it must be named correctly and its conditions met.

用定理要先验证条件

SG2023

4 · Contextual Applications of Differentiation 微分在实际情境中的应用

✗ Answering a rate question with a number and no units.

✓ **Attach them: cubic metres per minute, degrees per second.**

Units are a scored component in the contextual-application questions, and they are the cheapest point on the paper.

变化率要带单位

SG 4 years

✗ Saying a quantity is increasing because the derivative is positive, without evaluating it.

✓ **Show the value, then the conclusion: $v(3) = 0.042 > 0$, so the particle is moving right.**

The guidelines award the conclusion point only in the presence of the value that supports it.

先算出导数值再下结论

SG2023

✗ Reporting a related-rate expression without solving for the rate asked for.

✓ **Differentiate, substitute, then isolate the derivative the question names.**

The guidelines note responses that present an expression and fail to complete it earn only the earlier point.

要解出题目要求的那个变化率

SG2024

5 · Analytical Applications of Differentiation 微分的分析性应用

✗ Finding a critical point and calling it the maximum.

✓ **Justify it: say why it is a maximum – a sign change, the second derivative, or that it is the only critical point on a closed interval.**

The justification is a separate scored component, and this is the phrasing the guidelines credit.

极值要写出判断依据

SG 3 years

✗ Answering an absolute-extremum question without checking the endpoints.

✓ **Compare the critical values with both endpoint values.**

On a closed interval the extremum can sit at an endpoint, and the comparison is what the readers look for.

闭区间要比较端点

SG2023

6 · Integration and Accumulation of Change 积分与变化的累积

✗ Writing a Riemann-sum answer with none of the products shown.

✓ **Show the three or four products before you add them.**

The guidelines state a correct value with work that does not show the products does not earn the point.

黎曼和要写出每一项

SG 3 years

✗ Using a left sum where a trapezoidal sum was asked for.

✓ **The trapezoidal sum is the AVERAGE of the left and right sums – check which the question names.**

The readers note the equivalence, and a completely correct sum of the wrong type still earns nothing.

看清是左和、右和还是梯形和

SG2023

✗ Writing $\int f(t) dt$ with no limits.

✓ **A definite integral needs both limits, and the variable of integration must match.**

The guidelines describe responses that never present the definite integrals as a special case that loses the points.

定积分要写上下限

SG 3 years

8 · Applications of Integration 积分的应用

✗ Giving the value of an accumulation question without the initial condition.

✓ **Position is the initial value PLUS the integral of the rate.**

The guidelines set out this exact structure, and an integral alone is not the quantity asked for.

累积量要加初始值

SG 3 years

✗ Setting up an area or volume integral with the curves the wrong way round.

✓ **Sketch first, and subtract the lower from the upper.**

A sign error here produces a negative area, which the readers treat as a wrong answer rather than a slip.

面积要用上减下

CED 8.4

■ Where a question says JUSTIFY, the sentence explaining why is the point. Where it says SHOW, every interim step must be on the page.

“说明理由”与“证明”都要写过程

SG 4 years

2 · Differentiation: Definition and Fundamental Properties 微分: 定义与基本性质

✗ Differentiating a product as the product of the derivatives.

✓ $(uv)' = u'v + uv'$ – **write the rule out before substituting.**

The readers award a point for the correct form of the rule, separately from the algebra that follows.

乘积法则要先写出来

CED 2.8

✗ Simplifying a quotient-rule derivative and dropping a sign.

✓ **Leave it unsimplified if you are unsure – an unsimplified correct answer scores.**

The guidelines state a response presenting a subsequent simplification error does not earn the later point, while an unsimplified correct expression does.

不确定就不要化简

SG2024

3 · Differentiation: Composite, Implicit, and Inverse Functions 微分: 复合、隐式与反函数

✗ Differentiating implicitly and forgetting $\frac{dy}{dx}$ on the y terms.

✓ **Every y differentiated brings a factor of $\frac{dy}{dx}$ with it.**

The guidelines award the point for CONSIDERING dy/dx , so the missing factor loses it at the first line.

隐函数求导要带 dy/dx

SG2024

✗ Answering a tangent-line question with the slope only.

✓ **Give the equation of the line, through the point the question names.**

The question asks for a line; a gradient is not one.

切线要写出方程

CED 4.1

7 · Differential Equations 微分方程

✗ Separating a differential equation and never finding the constant.

✓ **Use the initial condition to solve for C , then write y explicitly.**

The particular solution is what the question asks for; a general solution is an earlier point only.

要用初始条件求出常数

CED 7.7

✗ Leaving the answer as $\ln|y| = \dots$

✓ **Exponentiate and solve for y , choosing the branch the initial condition sets.**

An implicit answer is not the explicit function the question names.

要解出 y 的显式表达

CED 7.7

✗ Sketching a slope field by computing every point.

✓ **Compute a few, and use the structure – where the slope is zero, positive, or undefined.**

The readers score the qualitative features, not the number of segments drawn.

斜率场看整体特征

CED 7.3

- Angle measures are assumed to be in radians, and solutions to equations must be real numbers. Both are stated on the exam's own general scoring notes.

角度用弧度, 解必须是实数

SG 2 years

- ✗ Answering a 'how many' or 'at what time' question with the equation you solved.

- ✓ **Give the value, to three decimal places, with its units.**

The final answer is a separate scored component from the setup that produced it.

最后要给出数值答案

SG 3 years

- ✗ Reporting an interval as an inequality about the wrong variable.

- ✓ **Check what the question asked for – a time interval, a set of x -values, or a set of function values.**

The guidelines note that endpoint values must be accurate to the required decimal places AND describe the right quantity.

看清区间是关于哪个量

SG2024