

Session 05-09 - Oral Exam Practice I

Section 05: Differential Calculus

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Welcome

Why Practice the Oral Exam?

Talking about mathematics is a skill of its own.

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- Students who do not pass the written Feststellungsprüfung sit an **oral examination**
- The oral rewards **understanding**: can you *explain* the maths, not just compute it?
- Explaining out loud also **deepens** your written-exam skills
- From now on, we practice this regularly - today is round one

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Tip

The full format is explained in our [oral exam guide](#) - we walk through it together today.

The Format at a Glance

Two topics, two very different situations

	Block A	Block B
Preparation	30 min , with notes	None - spontaneous
Subject	One area, announced	A <i>different</i> area
Your job	Present in free speech	Discuss an impulse question

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Note

Follow-up questions come at three levels: [I] reproduce · [II] apply · [III] evaluate and justify.

How Today Works

Roles and Rotation

You work in groups of three

- **Candidate:** receives a Block A sheet, prepares 30 minutes, then presents
- **Examiner:** runs the exam with the examiner key (follow-ups + Block B impulse)
- **Observer:** takes notes - clarity, structure, correct vocabulary - and gives feedback
- After each round, **roles rotate**, with a fresh topic set

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Tip

Being the examiner is secretly the best practice: you must judge *why* an answer is right.

Timing for Today

- **Preparation:** 30 minutes (candidate prepares, examiner reads the key)
- **Exam conversation:** ~20 minutes (Block A presentation + follow-ups, then Block B)
- **Feedback:** 10 minutes in the group
- Then rotation, and after the coffee break, the final round

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Warning

During preparation the candidate may use **notes they create now** - no books, no phones, exactly like the real oral.

Today's Topic Sets

Sets 09 and 10 - handed out in class

- **Set 09:** Cost & profit analysis (cubic cost) · Probability (binomial)
- **Set 10:** Exponential function analysis · Cost & profit (break-even, profit maximum)
- Both mirror the recurring written mock-exam problems - nothing new, just *spoken*

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Note

The numbers are deliberately calculator-light. The focus is *what* you compute and *why*.

What Good Answers Sound Like

Speaking Mathematics

Structure beats speed

- **Name the goal first:** “To find the break-even point, I set revenue equal to cost.”
- **Use the correct terms:** derivative, zero, factor, marginal cost - not “the thing”
- **Justify steps:** “I can divide by x here *because* $x = 0$ is not in the domain.”
- **Interpret results:** a number without a unit and a sentence is only half an answer

When You Get Stuck

- Say what you **do** know: “This is a quadratic, so I expect up to two solutions.”
- **Think aloud** - examiners reward a visible reasoning process
- Ask for the question to be **rephrased** rather than staying silent
- A corrected error counts far more than a lucky guess

Coffee Break - 15 Minutes

Final Round

Round Three

Rotate roles one last time

- The remaining group member becomes the candidate
- Examiner and observer swap as well
- Use your feedback notes from the first two rounds: what should this candidate try to do better?

Wrap-Up

Key Takeaways

- The oral exam is a **conversation**, not an interrogation
- **Structure + vocabulary + justification** = a strong answer
- Weaknesses you noticed today are your **study list** for the next round
- We will practice again after the integral-calculus mock

Next Session Preview

Session 06-01: Antiderivatives & Indefinite Integrals

- We review the mock exam and start **Section 06: Integral Calculus**
- Integration as the reverse of differentiation

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 Preparation

Rework one Block A topic from today **in writing** - the same problem, silent and precise.