



## Personal Data

Family Name:
Given Name:
Signature:
checked

## Registration Number

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0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9

In this section **no** changes or modifications must be made!

### Scrambling

0 0

Type

005

Exam ID

18010800001

Please mark the boxes carefully: ☒ Not marked: ☐ or ☐

This document is scanned automatically. Please keep clean and do not bend or fold. For filling in the document please use a **blue or black pen**.

**Only clearly marked and positionally accurate crosses will be processed!**

### Answers 1 - 3

	a	b	c	d	e
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	a	b	c	d	e





1. What is the derivative of  $f(x) = x^7 e^{3.9x}$ , evaluated at  $x = 0.61$ ?
  - (a) 3.89
  - (b) 5.22
  - (c) 4.23
  - (d) 6.86
  - (e) 3.01
  
2. A machine fills milk into 200ml packages. It is suspected that the machine is not working correctly and that the amount of milk filled differs from the setpoint  $\mu_0 = 200$ . A sample of 132 packages filled by the machine are collected. The sample mean  $\bar{y}$  is equal to 198.3 and the sample variance  $s_{n-1}^2$  is equal to 63.58.

Test the hypothesis that the amount filled corresponds on average to the setpoint. What is the value of the  $t$  test statistic?

  - (a) -2.449
  - (b) 11.972
  - (c) 6.047
  - (d) 7.388
  - (e) 5.093
  
3. What is the seat of the federal authorities in Switzerland (i.e., the de facto capital)?
  - (a) Vaduz
  - (b) Basel
  - (c) Geneva
  - (d) Lausanne
  - (e) Bern



