



Personal Data

Family Name:
Given Name:
Signature:
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Registration Number

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

Scrambling

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Type

010

Exam ID

15072900003

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 - 6

a b c d e

1

2

3 ☐ ☐ ☐ ☐ ☐

4 ☐ ☐ ☐ ☐ ☐

5 ☐ ☐ ☐ ☐ ☐

6

a b c d e





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

Type

999

Exam ID

15072900003

1 ☐ ☐ ☐ ☐ ☐

2 ☐ ☐ ☐ ☐ ☐

6 ☐ ☐ ☐ ☐ ☐

In the following please fill in your answers.










1

2




6



1. (1 point) What is the derivative of $f(x) = x^4 e^{3.1x}$, evaluated at $x = 0.69$?
2. (1 point) Given the following information:

	+		+		=	144
	+		+		=	439
	+		+		=	487

Compute:

	+		+		=	?
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3. (1 point) 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 216 packages filled by the machine are collected. The sample mean \bar{y} is equal to 203.5 and the sample variance s_{n-1}^2 is equal to 77.54.

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

- (a) 8.560
 - (b) 5.842
 - (c) 5.038
 - (d) 23.059
 - (e) 3.706
4. (2 points) The waiting time (in minutes) at the cashier of two supermarket chains with different cashier systems is compared. The following statistical test was performed:

Two Sample t-test

data: Waiting by Supermarket

$t = 4.191$, $df = 96$, $p\text{-value} = 1$

alternative hypothesis: true difference in means between group Sparag and group Consumo is less
95 percent confidence interval:

-Inf 3.98547

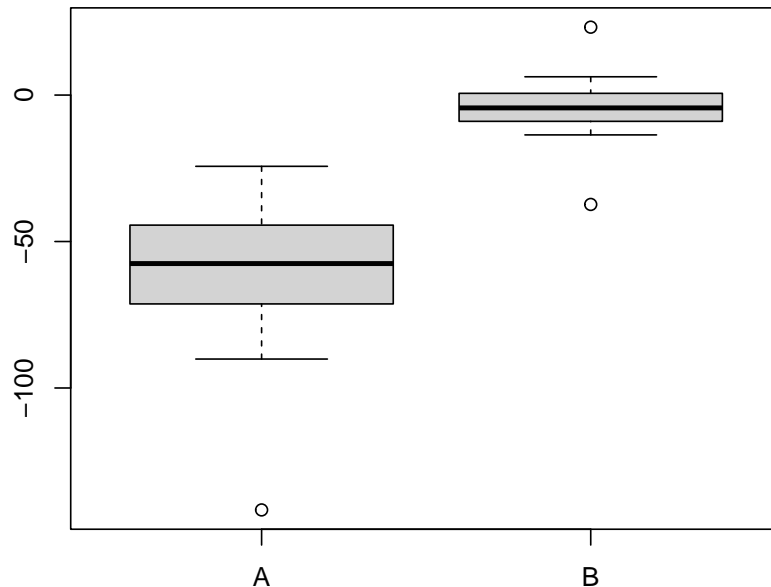
sample estimates:

mean in group Sparag	mean in group Consumo
6.043914	3.189605

Which of the following statements are correct? (Significance level 5%)

- (a) The absolute value of the test statistic is larger than 1.96.
- (b) A one-sided alternative was tested.
- (c) The p value is larger than 0.05.
- (d) The test shows that the waiting time is longer at Sparag than at Consumo.
- (e) The test shows that the waiting time is shorter at Sparag than at Consumo.

5. (2 points) In the following figure the distributions of a variable given by two samples (A and B) are represented by parallel boxplots. Which of the following statements are correct? (Comment: The statements are either about correct or clearly wrong.)



- (a) The location of both distributions is about the same.
 - (b) Both distributions contain no outliers.
 - (c) The spread in sample A is clearly bigger than in B.
 - (d) The skewness of both samples is similar.
 - (e) Distribution B is about symmetric.
6. (3 points) What is the name of the R function for extracting the estimated coefficients from a fitted (generalized) linear model object?

