

Personal Data

Family Name: _____

Given Name: _____

Signature: _____

checked

Registration Number

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4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
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In this section **no** changes or modifications must be made!

Scrambling

☐ 0 ☐ 0

Type

010

Exam ID

15072900004

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

15072900004

1 ☐ ☐ ☐ ☐ ☐

2 ☐ ☐ ☐ ☐ ☐

6 ☐ ☐ ☐ ☐ ☐

In the following please fill in your answers.










1

2




6



1. (1 point) What is the derivative of $f(x) = x^2 e^{3.2x}$, evaluated at $x = 0.57$?
2. (1 point) Given the following information:

	+		+		=	503
	+		+		=	527
	+		+		=	117

Compute:

	+		+		=	?
-----------------------------------------------------------------------------------	---	-----------------------------------------------------------------------------------	---	-----------------------------------------------------------------------------------	---	---

3. (1 point) A machine fills milk into 250ml packages. It is suspected that the machine is not working correctly and that the amount of milk filled differs from the setpoint $\mu_0 = 250$. A sample of 235 packages filled by the machine are collected. The sample mean \bar{y} is equal to 247.3 and the sample variance s_{n-1}^2 is equal to 101.7.

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

- (a) 22.815
 - (b) -19.608
 - (c) -4.104
 - (d) -0.643
 - (e) -23.581
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

$t = 2.2545$, $df = 108$, $p\text{-value} = 0.01309$

alternative hypothesis: true difference in means between group Sparag and group Consumo is greater than 0

95 percent confidence interval:

0.363526 Inf

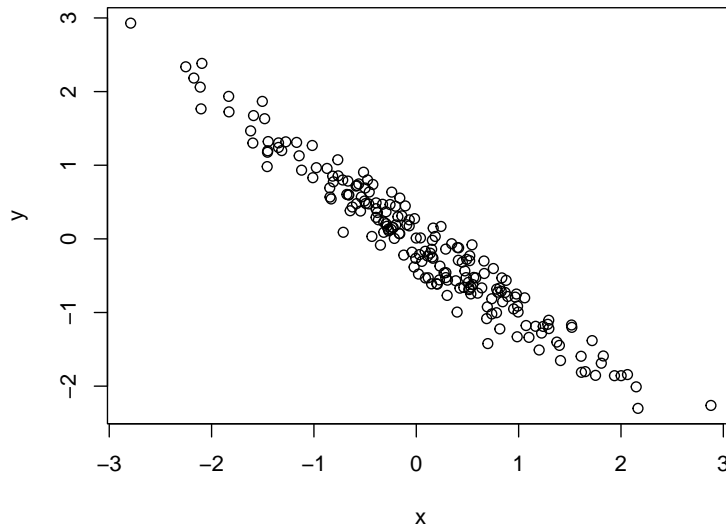
sample estimates:

mean in group Sparag	mean in group Consumo
6.425932	5.049497

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) The following figure shows a scatterplot. Which of the following statements are correct?



- (a) The slope of the regression line is about 1.
 - (b) The standard deviation of X is at least 6.
 - (c) The mean of X is at most 5.
 - (d) For $X = 0.3$, Y can be expected to be about 1.7 .
 - (e) The absolute value of the correlation coefficient is at most 0.8.
6. (3 points) What is the name of the R function for least-squares regression?

