

MATHEMATICS 2

Proff. Annalisa Fabretti and Isabella Valdivia

Exam

15/06/2017, A.Y. 2016/2017

Lastname Name

1) (*10 p.ts*) Solve the following integral

$$\int 3xe^{3-x}dx$$

2) (10 p.ts) Given the matrix

$$\begin{pmatrix} 4 & 6 & 0 \\ -3 & -5 & 0 \\ -3 & -6 & -5 \end{pmatrix}$$

find eigenvalues and eigenvectors.

3) (10 p.ts) Given the function in \mathbb{R}^3

$$f(x_1, x_2, x_3) = 4x_1^2 + 2x_2^2 + x_3^2 - x_1x_2 + x_2x_3 - 5x_1 - 9x_2 + x_3$$

find maximum and/or minimum and say if they are local or global.