

MATHEMATICS 2

Exam

13/02/2018, A.Y. 2016/2017

Lastname Name Group ☐ I ☐ II

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

$$\int \frac{e^{4x}}{e^{2x} + 2} dx$$

2) (10 p.ts) Given the matrix

$$A = \begin{pmatrix} 2 & 0 & 1 \\ 6 & -1 & -6 \\ 0 & 0 & 3 \end{pmatrix}$$

find eigenvalues and eigenvectors.

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

$$f(x, y) = 3x + y^2$$

find maximum and/or minimum given the constraint $g(x, y) = x^2 + y^2 = 4$