

Mathematical Methods II. Test of chapter 1. November 10th, 2021

Name and Surname:

ID card number:

In the following exercise, substitute α for the number of units on your ID card. If the number is zero, use the tens number (and so on).

1) Given the differential equation

$$\frac{dy}{dx} = \frac{3xy^2 - 2\alpha y}{\alpha x - 2x^2y}$$

- a) Is it exact? If not, find an integrating factor $\phi(x)$.
- b) Solve the corresponding exact equation.