

BEE1024 – Mathematics for Economists	Juliette Stephenson Amr Algarhi
Class Exercises Week 8	Department of Economics University of Exeter

Exercise 1 Evaluate

$$\int_{-2}^2 (x^2 - 4) dx$$

Exercise 2 Use integration by part (and, in b) also integration by substitution) to find

a) $\int x e^x dx$
b) $\int x(x+1)^8 dx$

Exercise 3 Use the substitution $u = 1 - x$ to find the indefinite integral

a) $\int \frac{1}{1-x} dx$
b) $\int \frac{x}{1-x} dx$

Check your answer by differentiating.

Exercise 4 (a) “Multiply”

$$\begin{bmatrix} 1 & 0 & 4 & 3 \end{bmatrix} \begin{bmatrix} 3 \\ 2 \\ 1 \\ 0 \end{bmatrix} = ?$$

(b) Find a non-zero solution to

$$\begin{bmatrix} 3 & 5 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = 0$$

Exercise 5 Consider the matrices

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}, \quad B = \begin{bmatrix} 5 & 4 & 3 \\ 2 & 1 & 0 \end{bmatrix}, \quad C = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 1 \end{bmatrix}$$

- a) Which of the following products is defined: AA , AB , AC' , AA' , AB'' ?
b) Calculate AB' and AC .