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

You must submit your solutions by 5pm Monday April 28th at the reception.

Please do not forget to write your name and your tutorial group (name of tutor, day of week, time) on your answer sheet.

Problem 1 *Solve by partial integration. Check your answers by differentiation.*

$$a) \int xe^{\frac{x}{2}}dx$$

$$b) \int (3-2x)\,e^{-x}dx$$

Problem 2 *Solve by substitution using* $u = x^2 - 1$ *and* $u = 3x + 5$ *respectively. Check your answers by differentiation.*

$$a) \int 2xe^{x^2-1}dx$$

$$b) \int \frac{1}{3x+5}dx$$

Problem 3 *"Multiply"*

$$\begin{bmatrix} 1 & 2 & 3 & 4 & 5 \end{bmatrix} \begin{bmatrix} 5 \\ 4 \\ 3 \\ 2 \\ 1 \end{bmatrix} = ?$$

Problem 4 *Consider the matrices*

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

a) Which of the following products is defined: AC', CA, CB, CC, CA', CB'?
b) Calculate BC' and CC'.