

# Mathematical Skills for Data Scientists

## Exercises 1 – 2 Marks

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Introduction to MatLab. You can find instructions here: <https://uk.mathworks.com/help/matlab/math/basic-matrix-operations.html>

Please submit screenshot of your answer or submit a pdf of live editor.

**Exercise 1** (Matrix multiplication). Let  $v = (0, 1, 2)^t$ ,

$$A := \begin{pmatrix} 2 & 3 & -1 \\ 1 & 0 & 1 \\ 1 & 0 & 2 \end{pmatrix} \quad B := \begin{pmatrix} 0 & 1 & -1 \\ -1 & 1 & 2 \\ 3 & 0 & 1 \end{pmatrix}$$

Compute  $AB$ ,  $BA$ ,  $Av$  and  $BAv$ .

**Exercise 2** (Linear equations). Solve  $Ax = (1, 2, 3)^t$  and  $By = (1, 0, 3)^t$  for  $x$  and  $y$ .