2.2 and 2.3 Handwrite Practice

Handwrite your responses to 1.–3. below and collate them into a PDF for submission into ASULearn.

1. Use as few calculations as possible to determine if $A = \begin{bmatrix} 3 & 0 & -3 \\ 2 & 0 & 4 \\ -4 & 0 & 7 \end{bmatrix}$ is invertible. Justify your reasoning.

2. If the columns of a 7×7 matrix D are linearly independent, what can be said about the solutions to $D\vec{x} = \vec{b}$? Justify your reasoning.

3. Suppose that A, B and C are invertible $n \times n$ matrices.

   a) List a matrix D, written using only A^{-1}, B^{-1} and C^{-1}, so that $(ABC)D = I_{n \times n}$.
   b) Show that $(ABC)D = I_{n \times n}$. Show all the steps for the matrix algebra and name them.
   c) How many times did you need to use associativity in part b)?