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In [1]:  ### CSCI-3080 Discrete Structure
         ### OLA 4: Chapter 5 -- Matrices
         ### Name:
         ### Student ID:
         ### Date:
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Exercise 1: Find x and y if

$$\begin{pmatrix} 1 & 3 \\ x & x+y \end{pmatrix} = \begin{pmatrix} 1 & 3 \\ 2 & 6 \end{pmatrix}$$

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Exercise 2: Compute A + rD

$$A + rD = \begin{pmatrix} 2 & 1 \\ -1 & 0 \\ 3 & 4 \end{pmatrix} + 3 \begin{pmatrix} 4 & -6 \\ 1 & 3 \\ 2 & -1 \end{pmatrix}$$

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Exercise 3: Compute B·D

$$\mathbf{B \cdot D} = \begin{pmatrix} 4 & 1 & 2 \\ 6 & -1 & 5 \\ 1 & 3 & 2 \end{pmatrix} \cdot \begin{pmatrix} 4 & -6 \\ 1 & 3 \\ 2 & -1 \end{pmatrix}$$

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Exercise 4: Solve the system of equations using Gaussian Elimination (Please show all the steps)

$$-x + 2y + z = -1$$
$$3x - 5y - z = 5$$
$$2x - y + 3z = 22$$

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Exercise 5: For the given Boolean matrices, calculate A ∧ B, A ∨ B, A × B, and B × A

(Don't need to show all steps, the final result is fine.)

$$A = \begin{pmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \\ 0 & 0 & 1 \end{pmatrix} \qquad B = \begin{pmatrix} 1 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 1 & 1 \end{pmatrix}$$

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