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### CSCI-3080 Discrete Structure
### OLA 3: Chapter 5 -- Matrices
### Name:
### Student ID:
### Date:
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Exercise 1: Find x and y if

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

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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

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

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

$$\begin{aligned} -x + 2y + z &= -1 \\ 3x - 5y - z &= 5 \\ 2x - y + 3z &= 22 \end{aligned}$$

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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.)

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

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