Assignment 1

Priya Bhatia

Abstract—**This document solves a problem from Lines and Planes,where we solve the given pair of linear equations.**

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1 PROBLEM

Solve the following pair of linear equation
$$\begin{pmatrix} 158 & -378 \end{pmatrix} x = -74$$
$$\begin{pmatrix} -378 & 152 \end{pmatrix} x = -604$$

2 EXPLANATION

Let the matrix is A and b is the vector.
So, Ax = b
Then we can calculate $x = A^{-1}.b$
$$A = \begin{pmatrix} 158 & -378 \\ -378 & 152 \end{pmatrix}$$
$$b = \begin{pmatrix} -74 \\ -604 \end{pmatrix}$$

3 SOLUTION

$$A = \begin{pmatrix} 158 & -378 \\ -378 & 152 \end{pmatrix}$$
$$b = \begin{pmatrix} -74 \\ -604 \end{pmatrix}$$

$$x = A^{-1}.b$$
$$x = \begin{pmatrix} 158 & -378 \\ -378 & 152 \end{pmatrix}^{-1} \cdot \begin{pmatrix} -74 \\ -604 \end{pmatrix}$$

Adjoint of a given matrix $A = \begin{pmatrix} 152 & 378 \\ 378 & 158 \end{pmatrix}$

Multiply by 1/Determinant of Matrix A with the adjoint in order to get the final result

$$x = \begin{pmatrix} 2.01534475 & 1.03815998 \end{pmatrix}$$