

EE5600 Assignment 4

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Abstract—This document contains the solution of linear algebra through the concept of Matrix Theory.

Download latex and python codes from

https://github.com/abhishekt711/EE5600/tree/master/Assignment_4

1 PROBLEM

Verify whether the following are zeroes of the polynomial, indicated against them.

$$p(x) = x^2 - 1, x = 1, -1$$

2 EXPLANATION

Given Equation can be written as:

$$\mathbf{x}^T \begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix} \mathbf{x} + (0 \ 0) \mathbf{x} - 1 = 0 \quad (2.0.1)$$

For $x=-1$,

$$(-1 \ 0)^T \begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix} (-1 \ 0) + (0 \ 0)(-1 \ 0) - 1 = 0 \quad (2.0.2)$$

$\therefore x = -1$ is the root of the given polynomial.

For $x=1$,

$$(1 \ 0)^T \begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix} (1 \ 0) + (0 \ 0)(1 \ 0) - 1 = 0 \quad (2.0.3)$$

$\therefore x = 1$ is the root of the given polynomial.

Hence, -1 and 1 are the zeros of the given polynomial.

The following python code computes roots of the quadratic equation represented in Fig. 0.

`./codes/Assignment_4.py`

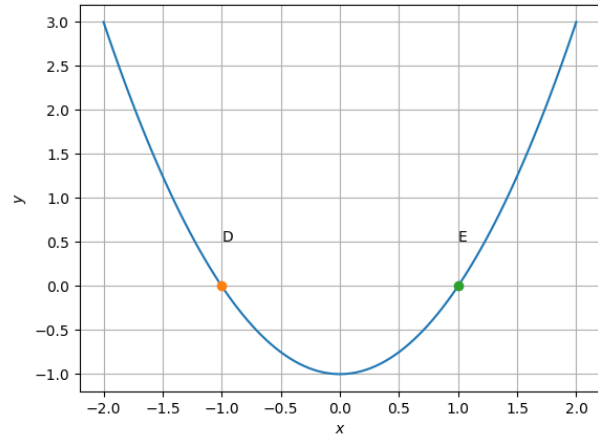


Fig. 0