1.10.7

EE24BTECH11037 - Manognya Kundarapu

Question:

The vector in the direction of vector $\hat{i} - 2\hat{j} + 2\hat{k}$ that has a magnitude 9 is

1) $\hat{i} - 2\hat{j} + 2\hat{k}$
2) $\hat{i} - 2\hat{j}$
3) $3\left(\hat{i} - 2\hat{j} + 2\hat{k}\right)$
4) $9\left(\hat{i} - 2\hat{j} + 2\hat{k}\right)$

Solution:

Direction vector	$\hat{i} - 2\hat{j} + 2\hat{k}$
magnitude	9

TABLE 4: given information

Required vector be $c\begin{pmatrix}1\\-2\\2\end{pmatrix} = \underline{\mathbf{v}}$

Given $\|c\underline{\mathbf{v}}\| = 9$

$\implies \sqrt{9c^2} = 9$

$\therefore c = 3$

$\implies$ Option 3 is correct.

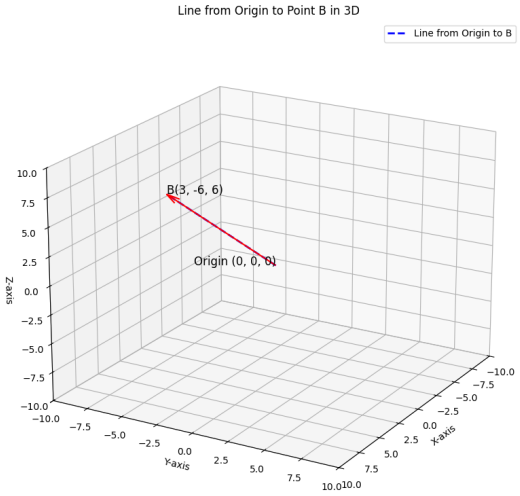

Fig. 4.1: Stem Plot of y(n)