1.1.5.26

EE24BTECH11030 - J.KEDARANANDA

Question:
Let **P** and **Q** be the points of trisection of the line segment joining the points $\mathbf{A}\,(2,-2)$ and $\mathbf{B}\,(-7,4)$ such that **P** is nearer to **A**. Find the coordinates of **P** and **Q**

$(10, 2016)$

Solution:

Variable	Description	Formula
x_1, y_1	x,y coordinate of P respectively	$\frac{k(\mathbf{B})+(\mathbf{A})}{k+1}$
x_2, y_2	x,y coordinate of Q respectively	$\frac{k(\mathbf{B})+(\mathbf{A})}{k+1}$

TABLE 0: Variables Used

Here according to problem value of k is 0.5 for **P** and 2 for **Q** respectively.

$$\mathbf{P} = \frac{1\mathbf{B} + 2\mathbf{A}}{3} = \frac{1\begin{pmatrix}-7\\4\end{pmatrix} + 2\begin{pmatrix}2\\-2\end{pmatrix}}{3} = \frac{\begin{pmatrix}-3\\0\end{pmatrix}}{3} \tag{0.1}$$

$$\mathbf{P} = \begin{pmatrix}-1\\0\end{pmatrix} \tag{0.2}$$

$$\mathbf{Q} = \frac{2\mathbf{B} + 1\mathbf{A}}{3} = \frac{2\begin{pmatrix}-7\\4\end{pmatrix} + 1\begin{pmatrix}2\\-2\end{pmatrix}}{3} = \frac{\begin{pmatrix}-12\\6\end{pmatrix}}{3} \tag{0.3}$$

$$\mathbf{Q} = \begin{pmatrix}-4\\2\end{pmatrix} \tag{0.4}$$

Hence the coordinates of **P** are $(-1, 0)$ and of **Q** are $(-4, 2)$

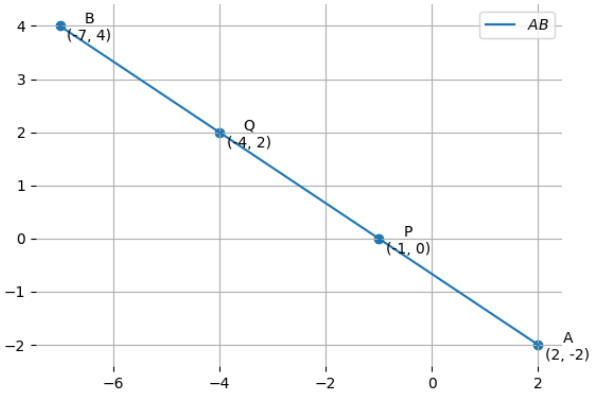

Fig. 0.1: Stem Plot of y(n)