

1-1.4-11

EE24BTECH11004 - ANKIT JAINAR

Question: Find the coordinates of the points which divide the line segment joining A(-2, 2) and B(2, 8) into four equal parts.

Solution: Using the section formula for internal division, the coordinates of the point dividing the line in the ratio $k : 1$ are given by:

$$R_k = \left(\frac{x_2 + k \cdot x_1}{k + 1}, \frac{y_2 + k \cdot y_1}{k + 1} \right) \quad (0.1)$$

where $k = \frac{i}{n-i}$, n , $0 < i < n$ is number of equal parts

For $n = 4$

now for

$$R_1, k = \frac{1}{3} \quad (0.2)$$

$$R_2, k = 1 \quad (0.3)$$

$$R_3, k = 3 \quad (0.4)$$

$$(0.5)$$

by substituting A=(-2, 2) and B=(2, 8) in R_k we get

$$R_1 = (-1.0, 3.5) \quad (0.6)$$

$$R_2 = (0.0, 5.0) \quad (0.7)$$

$$R_3 = (1.0, 6.5) \quad (0.8)$$

$$(0.9)$$

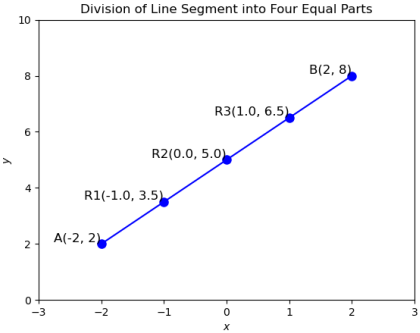


Fig. 0.1: Stem Plot of $y(n)$