

# 1.1.4.5

EE24BTECH11030 - J.KEDARANANDA

## Question:

Find the coordinates of **P** on **AD** such that **AP : PD** = 2 : 1, where coordinates of **A** are (0, 0) and **B** are (0, 9)

**Solution:** According to the question as **P** divides **AB** in the ratio 2:1 we can write

Variable	Description
$x$	x coordinate of P
$y$	y coordinate of P

TABLE 0: Variables Used

$$\mathbf{P} = \frac{k(\mathbf{B}) + (\mathbf{A})}{k + 1} = \begin{pmatrix} x \\ y \end{pmatrix} \quad (0.1)$$

(0.2)

where the value of k mentions about the ratio in which **P** divides **AB**

Here according to problem value of k is 2

$$P = \frac{2B + A}{3} = \frac{3 \begin{pmatrix} 0 \\ 9 \end{pmatrix} + \begin{pmatrix} 0 \\ 0 \end{pmatrix}}{3} = \frac{\begin{pmatrix} 0 \\ 18 \end{pmatrix}}{3} \quad (0.3)$$

(0.4)

$$P = \begin{pmatrix} 0 \\ 6 \end{pmatrix} \quad (0.5)$$

with simple comparison we can say that

$$x = 0 \quad (0.6)$$

$$y = 6 \quad (0.7)$$

(0.8)

Hence the coordinates of **P** are (0, 6)

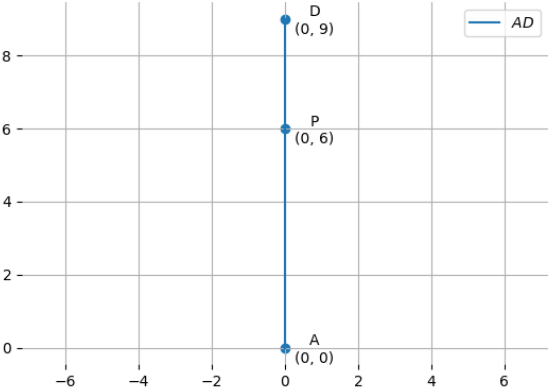


Fig. 0.1: Stem Plot of  $y(n]$