# Discrete Assignment

SAMMETA SAIPOORNA
EE23BTECH11055

**Question (10.5.2.4)**
Which term of the arithmetic progression (AP): $3, 8, 13, 18, \ldots$ is 78?
**Solution**

| Parameters | Value | Description |
|---|---|---|
| $x(0)$ | 3 | Initial Term |
| $d$ | 5 | Common Difference |
| $x(k)$ | 78 | Target Term |
| $k$ | ? | Target Term Number |
| $x(n)$ | $x(0) + (n)d$ | General term |

TABLE 0
Parameters for the Arithmetic Progression

$$x(n) = (3 + (n)5)\, u(n) \tag{1}$$

$$78 = 3 + (k)5 \tag{2}$$

$$k = 15 \tag{3}$$

$$X(z) = \frac{3 + 2z^{-1}}{(1 - z^{-1})^2} \quad |z| > 1 \tag{4}$$

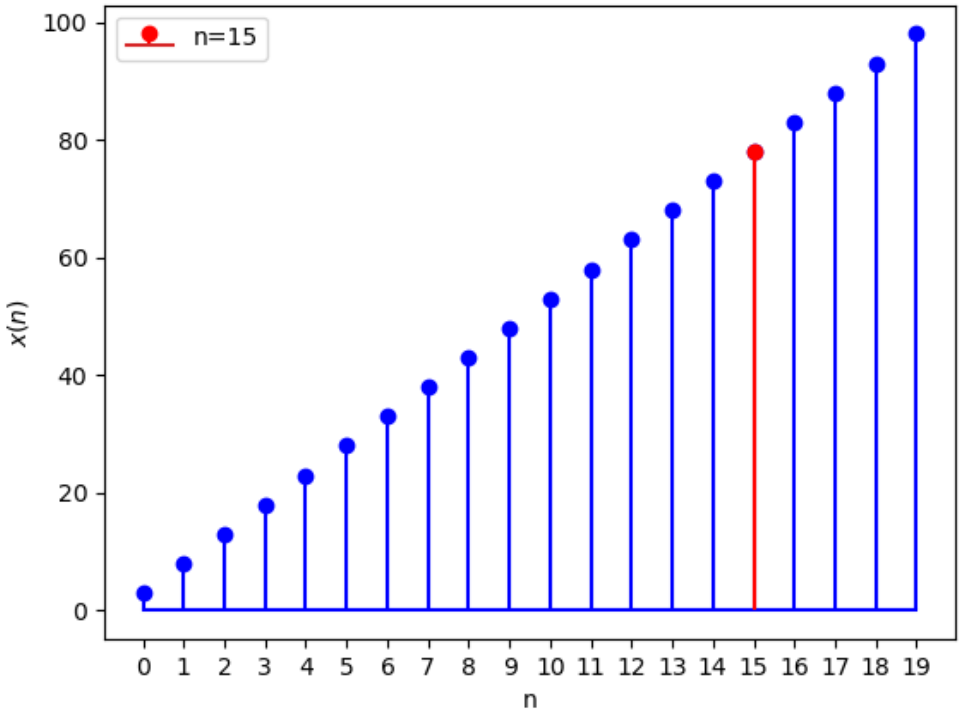


Fig. 0. Arithmetic Progression Plot