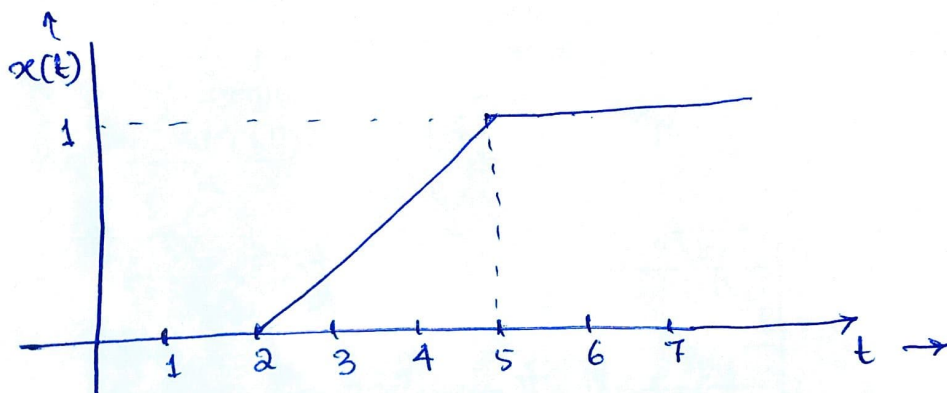


ASSIGNMENT-1

1. Obtain the z -transform of k^3 .
2. Obtain the z -transform of $t^2 e^{-at}$.
3. Find the z -transform of $x(k) = \sum_{h=0}^k a^h$.
4. Obtain the z -transform of the curve $x(t)$ shown below.



5. Find the solution of the following difference equation.

$$x(k+2) - 1.3x(k+1) + 0.4x(k) = u(k).$$

$$x(0) = x(1) = 0.$$

$$x(k) = 0 \text{ for } k < 0.$$

$$u(k) = \begin{cases} 1, & k = 0, 1, 2, \dots \\ 0, & k < 0. \end{cases}$$

6. Solve the following difference equation.

$$x(k+2) - x(k+1) + 0.25x(k) = u(k+2),$$

$$\text{where } x(0) = 1 \text{ and } x(1) = 2.$$