

**Tema 4: Transformada de Laplace – Ecuaciones diferenciales – Encuesta**

Determinar la solución continua de la ecuación diferencial con valores iniciales: con:

1.

$$\begin{cases} x'' - 2x' + x = \text{sen}(t) \mathbf{u}(t - \pi/2), \\ x(0) = 0, \quad x'(0) = 0 \end{cases}$$

2.

$$\begin{cases} x'' - 2x' + x = \cos(t) \mathbf{u}(t - \pi/2), \\ x(0) = 0, \quad x'(0) = 0 \end{cases}$$

3.

$$\begin{cases} x'' + 2x' + x = \text{sen}(t) \mathbf{u}(t - \pi/2), \\ x(0) = 0, \quad x'(0) = 0 \end{cases}$$

4.

$$\begin{cases} x'' + 2x' + x = \cos(t) \mathbf{u}(t - \pi/2), \\ x(0) = 0, \quad x'(0) = 0 \end{cases}$$

5.

$$\begin{cases} x'' + x = \text{sen}(t), \\ x(0) = 0, \quad x'(0) = 0 \end{cases}$$

6.

$$\begin{cases} x'' - 2x' + x = e^t \mathbf{u}(t - 1), \\ x(0) = 0, \quad x'(0) = 1 \end{cases}$$

7.  $tx'(t) + x(t) = \text{sen}(t)$

8.  $tx'(t) + x(t) = \text{sen}(2t)$

9.

$$\begin{cases} x'' + x = \mathbf{u}(t - \pi), \\ x(0) = 0, \quad x'(0) = 1 \end{cases}$$

10.

$$\begin{cases} x'' - x = e^{-t} \mathbf{u}(t - 1), \\ x(0) = 0, \quad x'(0) = 1 \end{cases}$$

11.

$$\begin{cases} x'' + x = \cos(t), \\ x(0) = 0, \quad x'(0) = 0 \end{cases}$$

12.

$$\begin{cases} x'' - x = t \mathbf{u}(t - 1), \\ x(0) = 0, \quad x'(0) = 2 \end{cases}$$

13.

$$\begin{cases} x'' + 4x = \text{sen}(2t), \\ x(0) = 0, \quad x'(0) = 0 \end{cases}$$