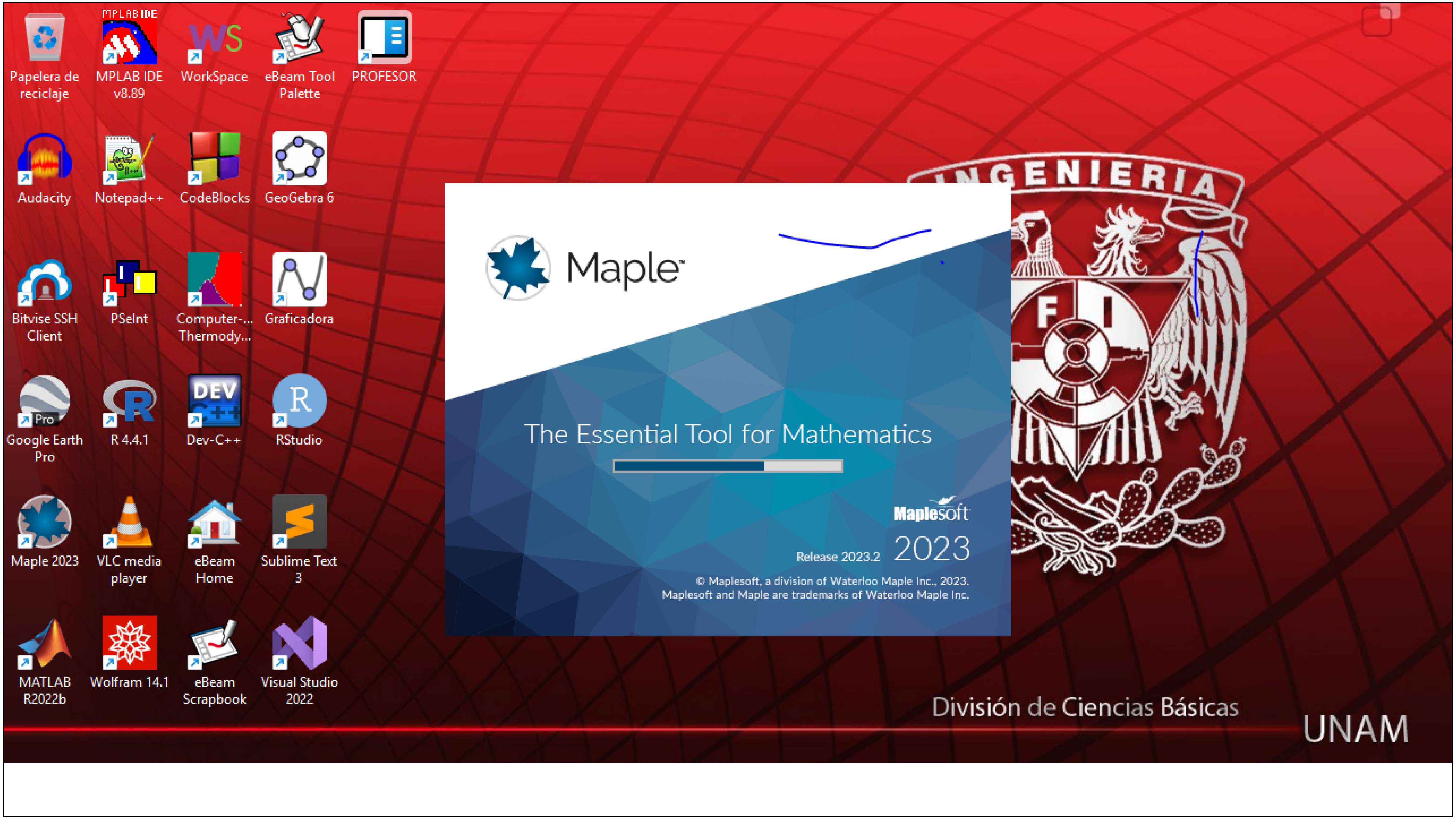
Papelera de reciclaje
MPLAB IDE
MPLAB IDE v8.89
WorkSpace
eBeam Tool Palette
PROFESOR
Audacity
Notepad++
CodeBlocks
GeoGebra 6
Bitvise SSH Client
PSeInt
Computer-... Thermody...
Graficadora
Google Earth Pro
R 4.4.1
Dev-C++
RStudio
Maple 2023
VLC media player
eBeam Home
Sublime Text 3
MATLAB R2022b
Wolfram 14.1
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INGENIERIA
F I
División de Ciencias Básicas
UNAM

TEMA IV .- Una muy breve introducción a las ecuaciones diferenciales en Derivadas Parciales.

$P(D^n)y(x)=0$ n= orden

$P(D^n)y(x,t)=0$

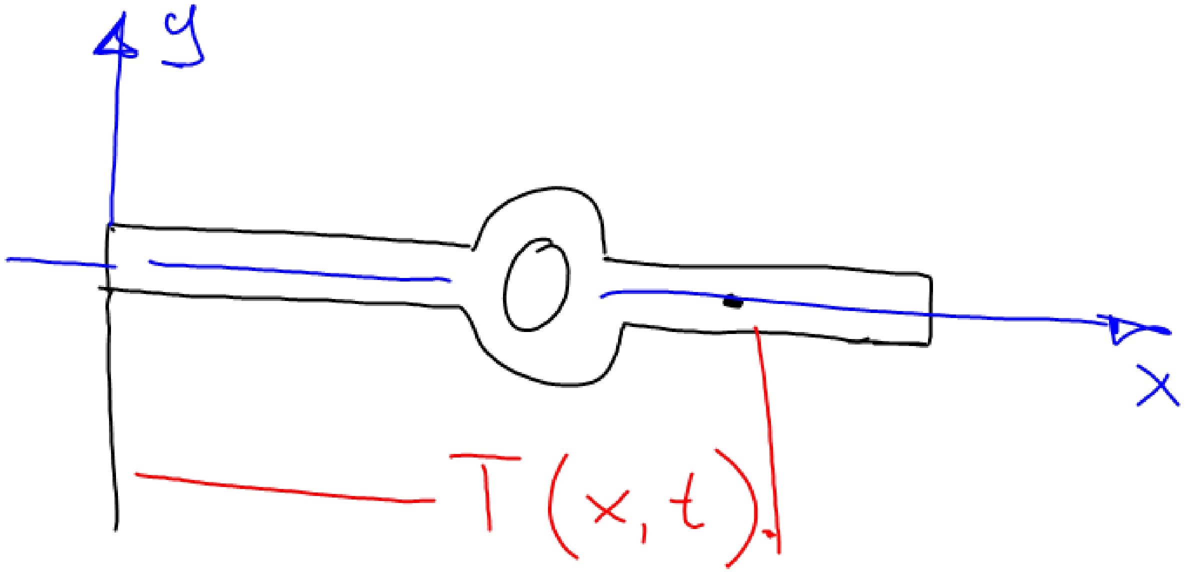
$$\frac{d^2y}{dx^2}+5\frac{dy}{dx}=8e^{2x}$$ n=2 orden

$$\frac{\partial^2 y}{\partial x^2}+\frac{\partial^2 y}{\partial x \partial t}-7\frac{\partial^2 y}{\partial t^2}=y(x,t)$$ n=2

$$y_g=C_1y_1+C_2y_2+F(x)$$

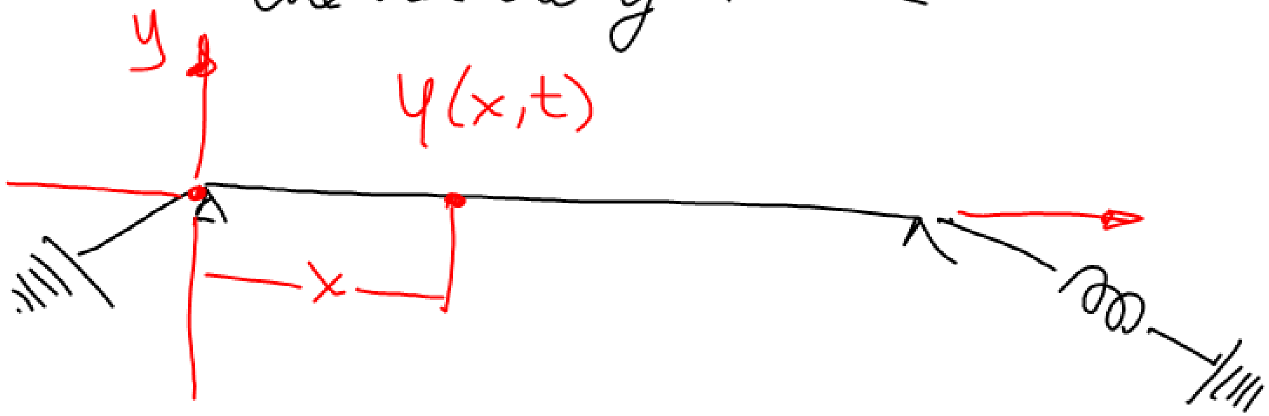
$$y_g(x,t)=F_1(x,t)+F_2(x,t)$$

	PROGR.	VIDA REAL
EDO	85%	20%
EDenDP	15%	80%



$$\frac{\partial^2 T(x,t)}{\partial x^2} - k_1 \frac{\partial^2 T(x,t)}{\partial t^2} = 0$$

cuerda de guitarra



$$\frac{\partial^2 y(x,t)}{\partial x^2} + 5\frac{\partial^2 y(x,t)}{\partial x \partial t} + 6\frac{\partial^2 y(x,t)}{\partial t^2} = 0$$

$$H_0 \to y = f(t+mx)$$

$$\frac{\partial y}{\partial x} = m f'(t+mx) \qquad \frac{\partial y}{\partial t} = f'(t+mx)$$

$$\frac{\partial^2 y}{\partial x^2} = m^2 f''(t+mx)$$

$$\frac{\partial^2 y}{\partial t^2} = f''(t+mx)$$

$$\frac{\partial^2 y}{\partial x \partial t} = m f''(t+mx).$$

$$m^2 f''(t+mx) + 5m f''(t+mx) + 6 f''(t+mx) = 0$$

$$(m^2+5m+6) f''(t+mx) = 0$$

$$m^2+5m+6=0 \qquad f''(t+mx)=0$$

$$(m+3)(m+2)=0 \qquad f'(t+mx)=C_1$$

$$m_1=-3 \qquad \boxed{f(t+mx) = C_1(t+mx)+C_2}$$

$$m_2=-2$$

$$\boxed{y_g = f_1(t-3x)+f_2(t-2x)}$$

trivial.

$$y_p = (t-3x)^3 + 4(t-2x)^2$$

$$y_p = \cos(t-3x) + \operatorname{sen}(t-2x)$$

$$y_p = e^{(t-2x)}\cos(t-2x) + e^{(t-3x)}$$

EDO(n) • { L { CC { H ∞ SP.
CV { NH.
NL { a) ∞ SP.
b) ∞ SP
$\#$ SS.

SOL. GRAL $\longrightarrow$ ÚNICA.

EDenDP $\longrightarrow$

SOL GRAL $\longrightarrow$ NO SON ÚNICAS.

$$\frac{\partial^2 z(x,y)}{\partial x^2} - 4\,\frac{\partial^2 z(x,y)}{\partial x\,\partial y} + 4\,\frac{\partial^2 z(x,y)}{\partial y^2} = 0$$

$$z(x,y) = f(y+mx)$$

$$m^2 - 4m + 4 = 0$$

$$(m-2)^2 = 0 \qquad m_1 = 2 \qquad m_2 = 2$$

$$\left\{ \begin{array}{l} z_g(x,y) = f_1(y+2x) + f_2(y+2x)\cdot x \\ \\ z_g(x,y) = f(y+2x) + f_2(y+2x)\cdot y \end{array} \right.$$