> *restart*

> $AA := array([[2, 3], [4, 6]])$

$$AA := \begin{bmatrix} 2 & 3 \\ 4 & 6 \end{bmatrix} \tag{1}$$

> $Xcero := array([3, -5])$

$$Xcero := \begin{bmatrix} 3 & -5 \end{bmatrix} \tag{2}$$

> $with(linalg):$
> $MatExp := exponential(AA, t)$

$$MatExp := \begin{bmatrix} \dfrac{3}{4} + \dfrac{1}{4}\,e^{8t} & \dfrac{3}{8}\,e^{8t} - \dfrac{3}{8} \\[2ex] \dfrac{1}{2}\,e^{8t} - \dfrac{1}{2} & \dfrac{1}{4} + \dfrac{3}{4}\,e^{8t} \end{bmatrix} \tag{3}$$

> $Solucion := evalm(\ MatExp \ \&^* \ Xcero)$

$$Solucion := \begin{bmatrix} \dfrac{33}{8} - \dfrac{9}{8}\,e^{8t} & -\dfrac{9}{4}\,e^{8t} - \dfrac{11}{4} \end{bmatrix} \tag{4}$$

> $Sol_1 := x_1(t) = Solucion_1;\ Sol_2 := x_2(t) = Solucion_2$

$$Sol_1 := x_1(t) = \frac{33}{8} - \frac{9}{8}\,e^{8t}$$

$$Sol_2 := x_2(t) = -\frac{9}{4}\,e^{8t} - \frac{11}{4} \tag{5}$$

>
> $Sistema := diff\left(y_1(t), t\right) = 2 \cdot y_1(t) + 3 \cdot y_2(t),\ diff\left(y_2(t), t\right) = 4 \cdot y_1(t) + 6 \cdot y_2(t) : Sistema_1;$
$\qquad Sistema_2$

$$\frac{d}{dt}\,y_1(t) = 2\,y_1(t) + 3\,y_2(t)$$

$$\frac{d}{dt}\,y_2(t) = 4\,y_1(t) + 6\,y_2(t) \tag{6}$$

> $Condiciones := y_1(0) = 3, y_2(0) = -5;$

$$Condiciones := y_1(0) = 3, y_2(0) = -5 \tag{7}$$

> $SolPart := dsolve(\{Sistema, Condiciones\})$

$$SolPart := \left\{ y_1(t) = \frac{33}{8} - \frac{9}{8}\,e^{8t}, y_2(t) = -\frac{9}{4}\,e^{8t} - \frac{11}{4} \right\} \tag{8}$$

>