

```

> restart
Este texto no será procesado como fórmula
> EcuacionAlgebraica := m^3 - 3·m^2 + 3·m - 1 = 0 :
> EcuacionAlgebraica

$$m^3 - 3 m^2 + 3 m - 1 = 0 \quad (1)$$

> Raiz := solve(EcuacionAlgebraica)

$$Raiz := 1, 1, 1 \quad (2)$$

> NuevaEcuacion := expand((m - Raiz[1])·(m - Raiz[2])·(m - Raiz[3])) = 0

$$NuevaEcuacion := m^3 - 3 m^2 + 3 m - 1 = 0 \quad (3)$$

> restart
> EcuaAlg := m^2 + m + 1 = 0

$$EcuaAlg := m^2 + m + 1 = 0 \quad (4)$$

> Raiz := solve(EcuaAlg)

$$Raiz := -\frac{1}{2} + \frac{I\sqrt{3}}{2}, -\frac{1}{2} - \frac{I\sqrt{3}}{2} \quad (5)$$

> Raiz[1]

$$-\frac{1}{2} + \frac{I\sqrt{3}}{2} \quad (6)$$

> Raiz[2]

$$-\frac{1}{2} - \frac{I\sqrt{3}}{2} \quad (7)$$

> Re(Raiz[1])

$$-\frac{1}{2} \quad (8)$$

> Re(Raiz[2])

$$-\frac{1}{2} \quad (9)$$

> Im(Raiz[1])

$$\frac{\sqrt{3}}{2} \quad (10)$$

> Im(Raiz[2])

$$-\frac{\sqrt{3}}{2} \quad (11)$$

> EcuaFinal := expand((m - Raiz[1])·(m - Raiz[2])) = 0

$$EcuaFinal := m^2 + m + 1 = 0 \quad (12)$$

> evalf(Raiz[1])

$$-0.5000000000 + 0.8660254040 I \quad (13)$$

> evalf(Raiz[1], 4)

$$-0.5000 + 0.8660 I \quad (14)$$

> restart
> evalf(Pi, 50000) :
> semana := [lunes, martes, miercoles, jueves, viernes, sabado, domingo]

```

```
semana := [lunes, martes, miercoles, jueves, viernes, sabado, domingo]
```

(15)

```
> diaHabil := semana[1..5]
```

```
diaHabil := [lunes, martes, miercoles, jueves, viernes]
```

(16)

```
> FinDeSemana := semana[6..7]
```

```
FinDeSemana := [sabado, domingo]
```

(17)

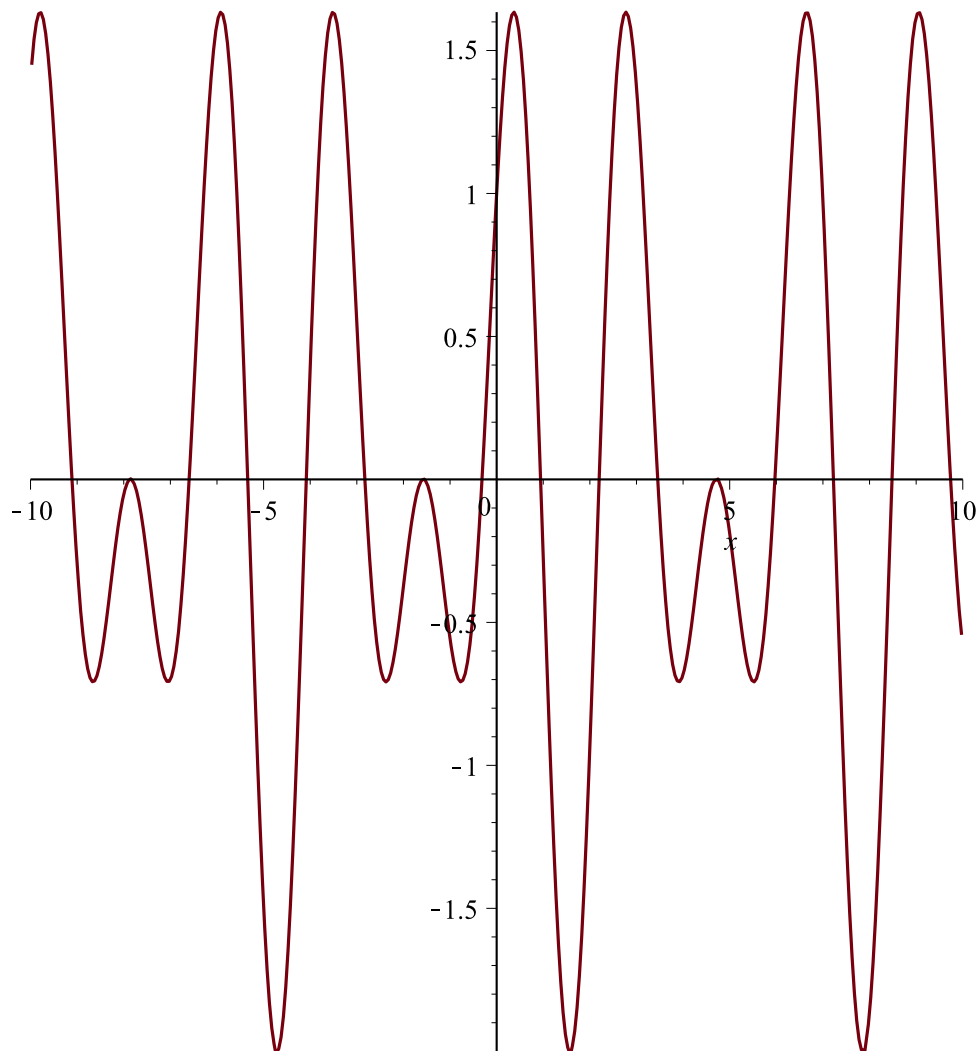
```
> restart
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```
> Funcion := cos(2·x) + sin(3·x)
```

```
Funcion := cos(2 x) + sin(3 x)
```

(18)

```
> plot(Funcion, x=-10..10)
```



```
> restart
```

```
> Digits := 5
```

```
Digits := 5
```

(19)

> Ecua := y'' - 6·y' + 4·y = 0

$$Ecua := \frac{d^2}{dx^2} y(x) - 6 \frac{d}{dx} y(x) + 4 y(x) = 0 \quad (20)$$

> SolGral := dsolve(Ecua)

$$SolGral := y(x) = c_1 e^{(3+\sqrt{5})x} + c_2 e^{-(\sqrt{5}-3)x} \quad (21)$$

> SolGeneral := evalf(SolGral)

$$SolGeneral := y(x) = c_1 e^{5.2361x} + c_2 e^{0.7639x} \quad (22)$$

> with(DEtools) :

> odeadvisor(Ecua)

$$[[\_2nd\_order, \_missing\_x]] \quad (23)$$

> restart

> AA := array([ [1, 2, 3], [4, -5, 6], [7, 8, 9] ])

$$AA := \begin{bmatrix} 1 & 2 & 3 \\ 4 & -5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \quad (24)$$

> with(linalg) :

> det(AA)

$$120 \quad (25)$$

> AAinv := inverse(AA)

$$AAinv := \begin{bmatrix} -\frac{31}{40} & \frac{1}{20} & \frac{9}{40} \\ \frac{1}{20} & -\frac{1}{10} & \frac{1}{20} \\ \frac{67}{120} & \frac{1}{20} & -\frac{13}{120} \end{bmatrix} \quad (26)$$

> Identidad := evalm(AA &\* AAinv)

$$Identidad := \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad (27)$$

> WW := wronskian([exp(3 x), cos(2 x), sin(2 x)], x)

$$WW := \begin{bmatrix} e^{3x} & \cos(2x) & \sin(2x) \\ 3e^{3x} & -2\sin(2x) & 2\cos(2x) \\ 9e^{3x} & -4\cos(2x) & -4\sin(2x) \end{bmatrix} \quad (28)$$

> Valor := simplify(det(WW)) ≠ 0

$$Valor := 26 e^{3x} \neq 0 \quad (29)$$

> restart

> Ecua := 2·x·y'·(x - y<sup>2</sup>) + y<sup>3</sup> = 0

$$Ecua := 2x \left( \frac{d}{dx} y(x) \right) (x - y(x)^2) + y(x)^3 = 0 \quad (30)$$

```
> with(DEtools) :
```

```
> odeadvisor(Ecua)
```

```
[[_homogeneous, class G], _rational] (31)
```

```
> EcuaDos := simplify(isolate(eval(subs(y(x)=x*u(x), Ecua)), diff(u(x), x)))
```

$$EcuaDos := \frac{d}{dx} u(x) = - \frac{u(x) (x u(x)^2 - 2)}{2x (x u(x)^2 - 1)} \quad (32)$$

```
> odeadvisor(EcuaDos)
```

```
[[_homogeneous, class G], _rational] (33)
```

```
> M := u (x u^2 - 2)
```

$$M := u (x u^2 - 2) \quad (34)$$

```
> N := 2 x (x u^2 - 1)
```

$$N := 2x (x u^2 - 1) \quad (35)$$

```
>
```