

# PV26: GRÁFICAS Y FUNCIONES

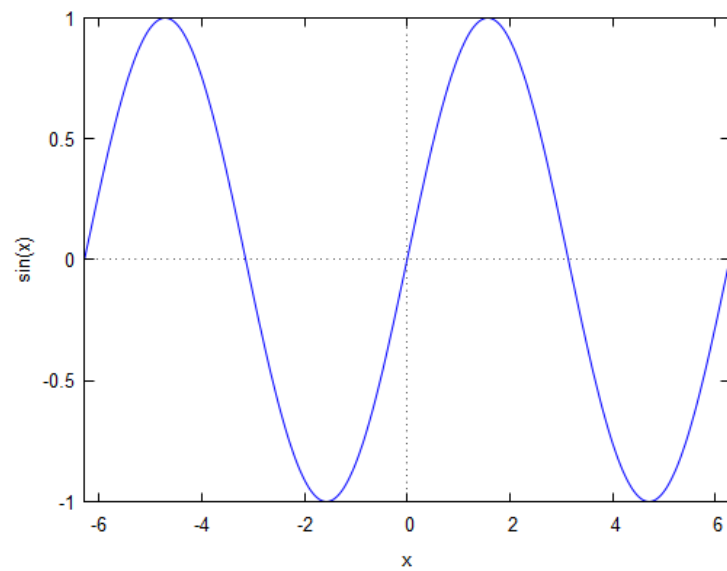
## 1 Grafica las siguientes funciones

### 1.1

→ `f(x):=sin(x);`

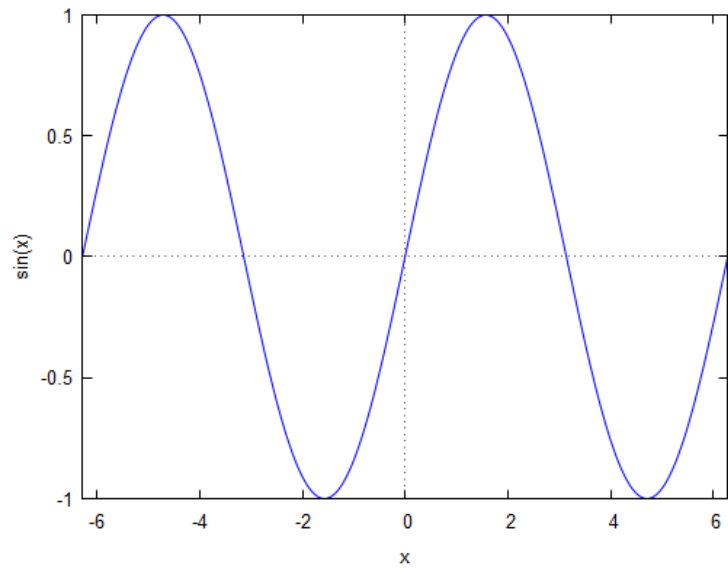
`f(x) := sin(x)` (% o1)

→ `wxplot2d([f(x)], [x,-2*%pi,2*%pi])$`



(% t2)

→ `wxplot2d([f(x)], [x,-2*%pi,2*%pi])$`



(% t3)

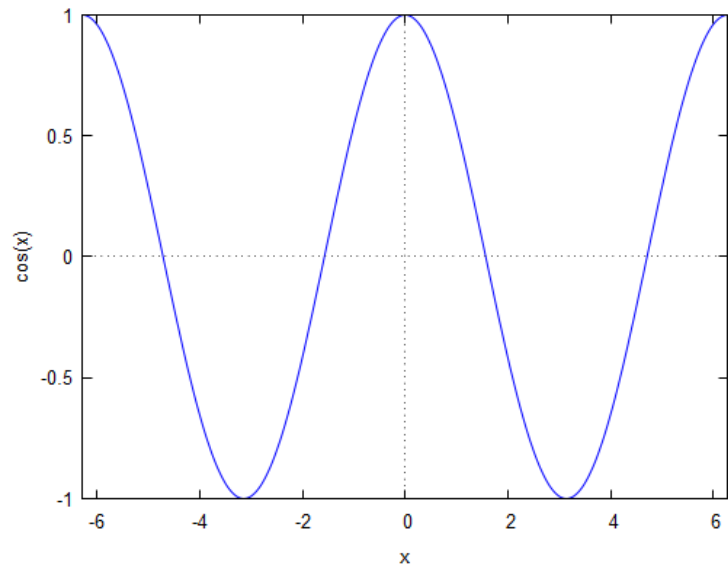
## 1.2

→ `g(x):=cos(x);`

$g(x) := \cos(x)$

(% o4)

→ `wxplot2d([g(x)], [x,-2*%pi,2*%pi])$`

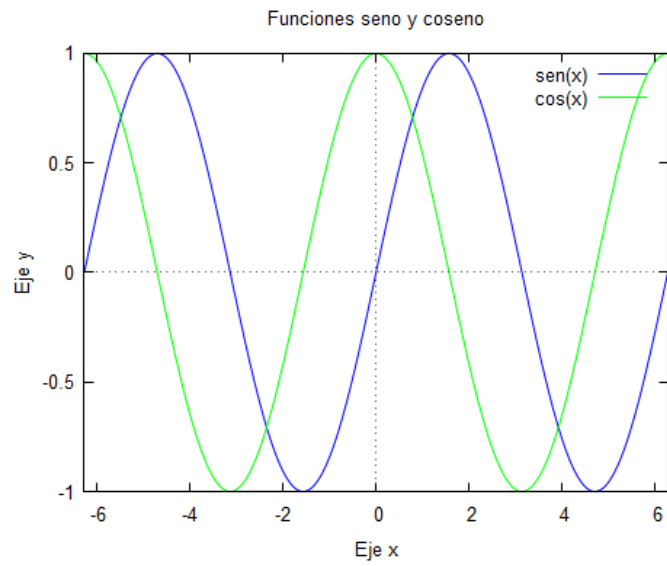


(% t5)

### 1.3

→

→ `wxplot2d([f(x),g(x)],[x,-2*%pi,2*%pi],[legend,"sen(x)","cos(x)"],  
[xlabel,"Eje x"], [ylabel,"Eje y"], [title,"Funciones seno y coseno"],  
[color,blue,green])$`



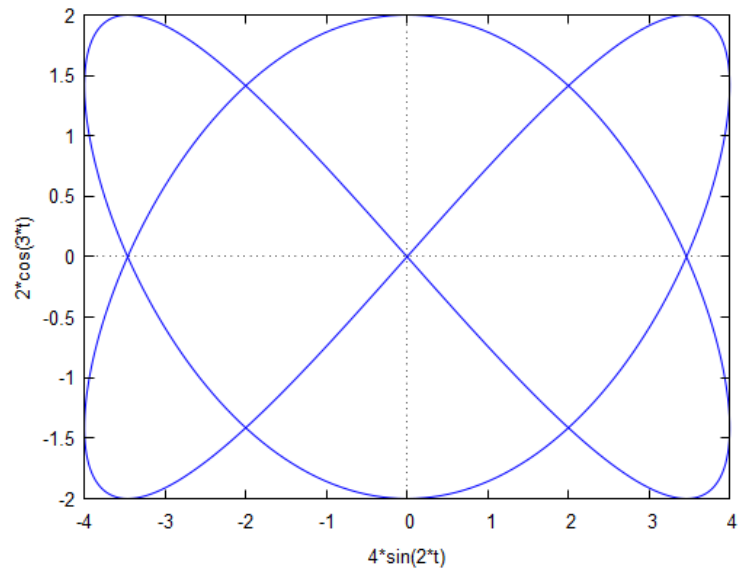
(% t9)

## 2 Construye la gráfica de la ecuación paramétrica

→



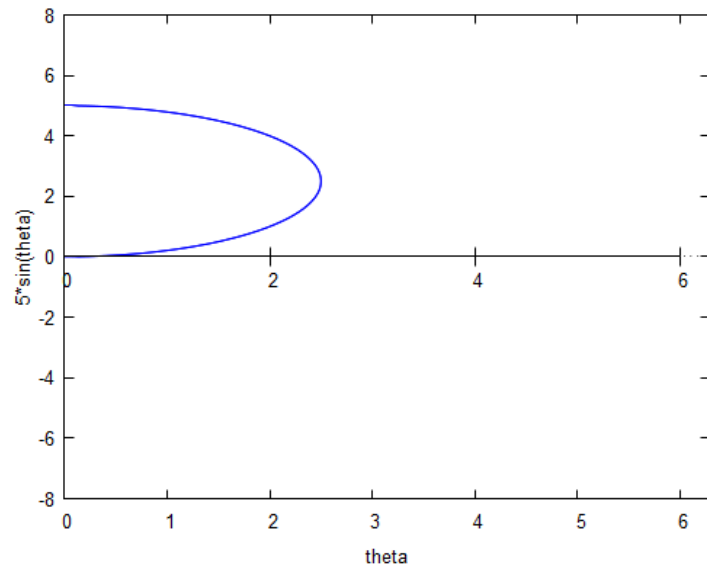
```
wxplot2d([[parametric, 4*sin(2*t), 2*cos(3*t), [t, -6, 6]])]
```



(% t12)

### 3 Grafica la ecuación polar

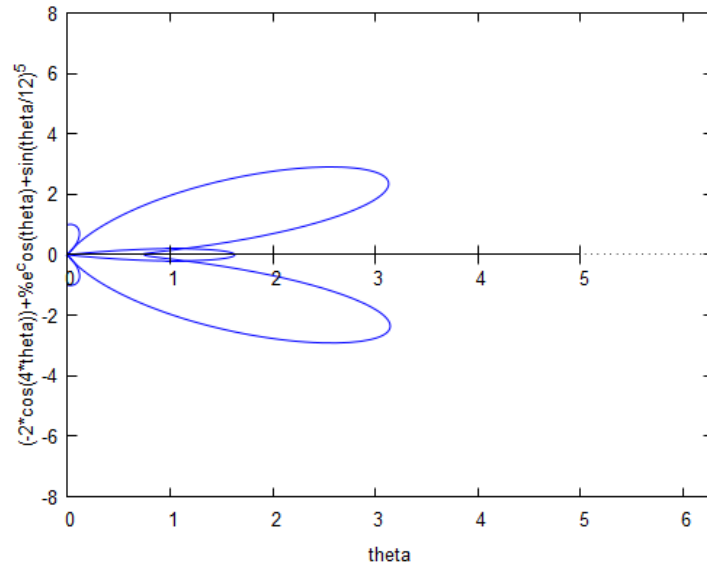
→ `wxplot2d([5*sin(theta)],[theta,0,2*pi],[gnuplot_postamble,"set polar;set zeroaxis;"])`



(% t1)

## 4 Grafica la ecuación

→ `wxplot2d([%^(cos(theta))-2*cos(4*theta)+sin(theta/12)^5],[theta,0,2*%pi],  
[gnuplot_postamble,"set polar;set zeroaxis;"])$`



(% t2)

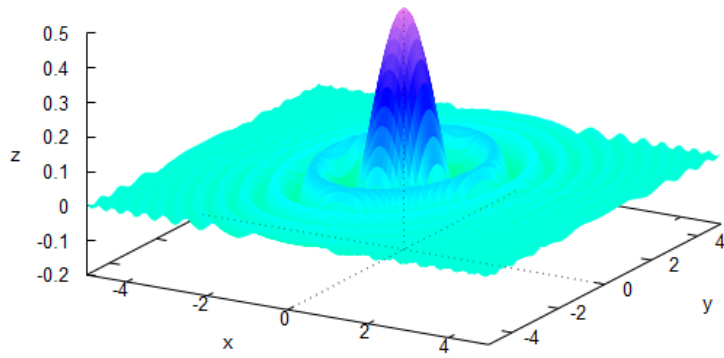
## 5 Grafica en 3D

### 5.1

→ `f(x,y):=(1/2*cos(2*x^2+y^2))/(1+2*x^2+y^2);`

$$f(x, y) := \frac{\frac{1}{2} \cos(2x^2 + y^2)}{1 + 2x^2 + y^2} \quad (\% \text{ o3})$$

→ `wxplot3d(f(x,y),[x,-5,5],[y,-5,5],[grid,100,100],[mesh_lines_color,false],[legend,""])`



(% t4)

→ ;

## 5.2

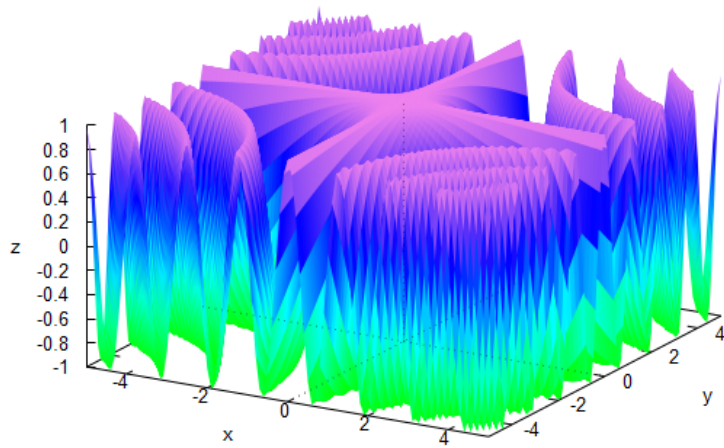
→ `g(x,y):=cos(x*y);`

$g(x,y) := \cos(xy)$

(% o7)



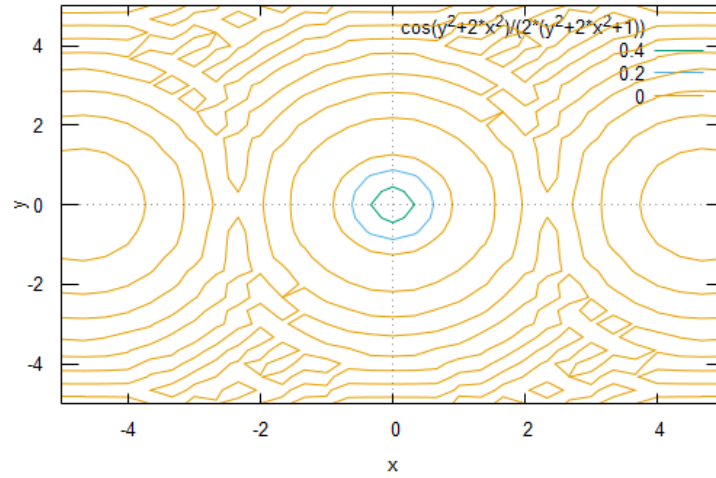
→ `wxplot3d(g(x,y),[x,-5,5],[y,-5,5],[grid,100,100],[mesh_lines_color,false],[legend,""])`



(% t8)

### 5.3

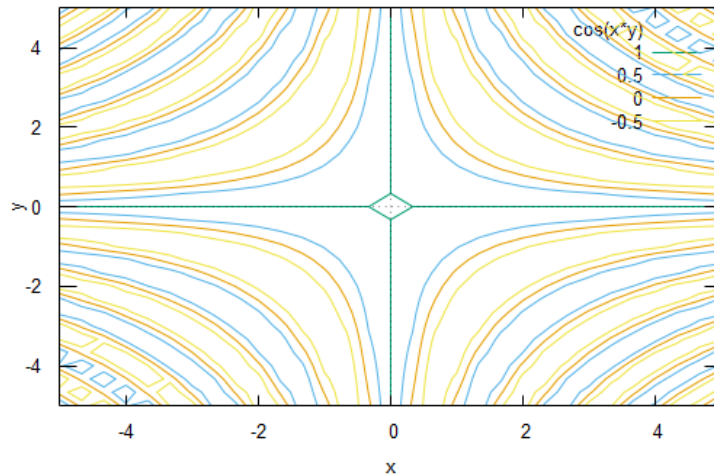
→ `wxcontour_plot(f(x,y),[x,-5,5],[y,-5,5])$`



(% t9)

## 5.4

→ `wxcontour_plot(g(x,y),[x,-5,5],[y,-5,5])$`



(% t10)

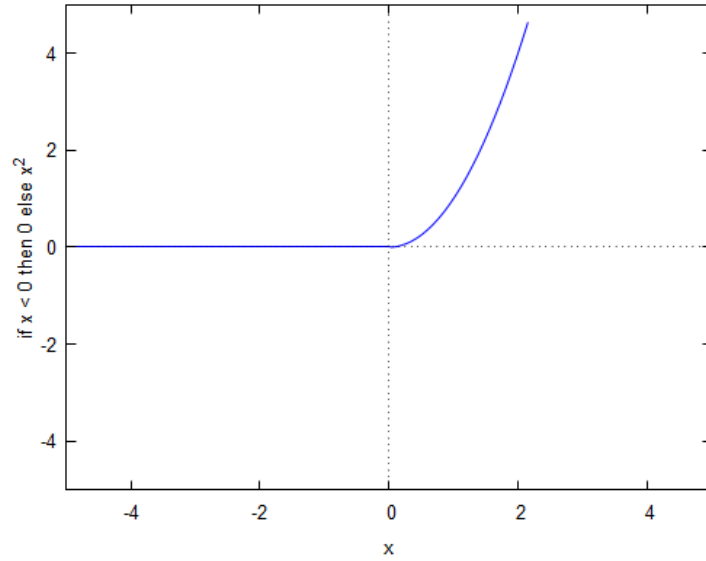
## 6 Grafica la siguiente función definida por partes

→ `h(x):=if x<0 then 0 else x^2;`

$h(x) := \text{if } x < 0 \text{ then } 0 \text{ else } x^2$  ( % o11)

→ `wxplot2d([h(x)], [x,-5,5],[y,-5,5])$`

plot2d: some values were clipped.



(% t14)

## 7 Grafica la siguiente función implícita (sin realizarningún despeje)

→ `k:solve(y/x*(x+y)=1,y);`

$$\left[ y = -\frac{\sqrt{x^2 + 4x} + x}{2}, y = \frac{\sqrt{x^2 + 4x} - x}{2} \right] \quad (k)$$

→ `sol1:rhs(k[1]);`

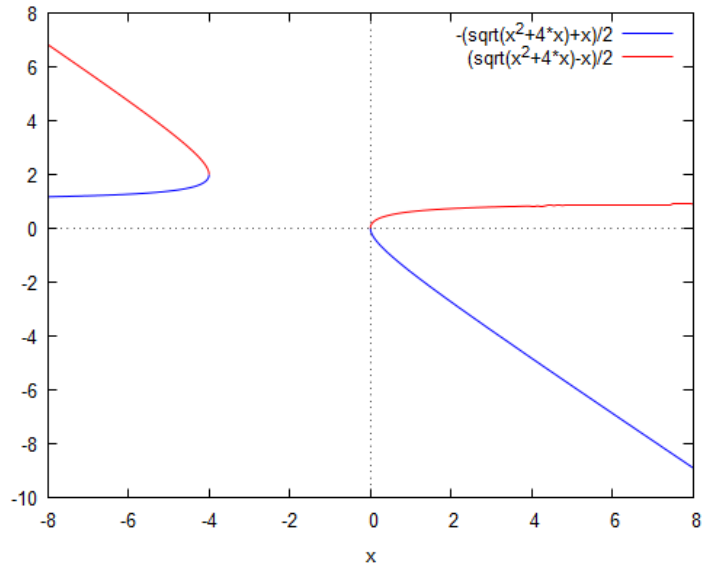
$$-\frac{\sqrt{x^2 + 4x} + x}{2} \quad (sol1)$$

→ `sol2:rhs(k[2]);`

$$\frac{\sqrt{x^2 + 4x} - x}{2} \quad (sol2)$$

→ `wxplot2d([sol1,sol2],[x,-8,8]);`

plot2d: expression evaluates to non-numeric value somewhere in plotting range.plot2d: expression evaluates to



(% t19)

(% o19)