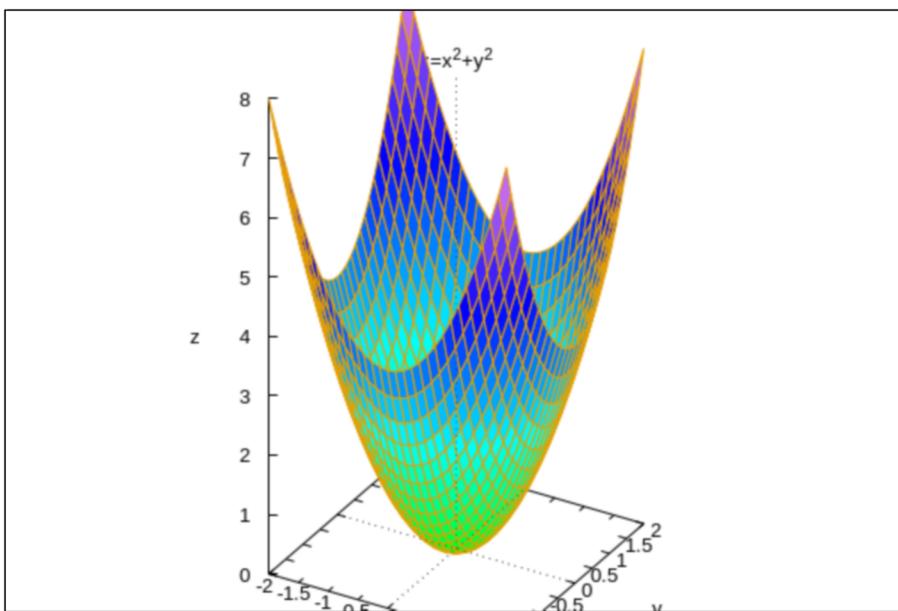


→ / . Some examples of the graphs of functions of two variables
Note that all the outputs are displayed outside of this file and rotatable
by using plot3d instead of wxplot3d. . /

(%i1) / . a paraboloid . /

```
wxplot3d(x^2+y^2, [x,-2,2], [y,-2,2], same_xyz,  
[legend,false],[title,"z=x^2+y^2"])$
```

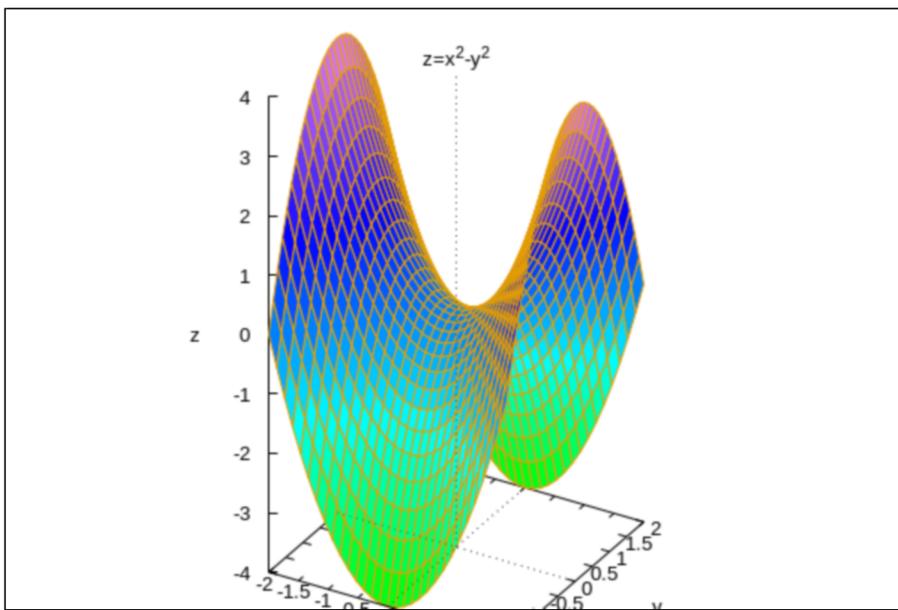
(%t1)



(%i2) / . The origin is a saddle point. . /

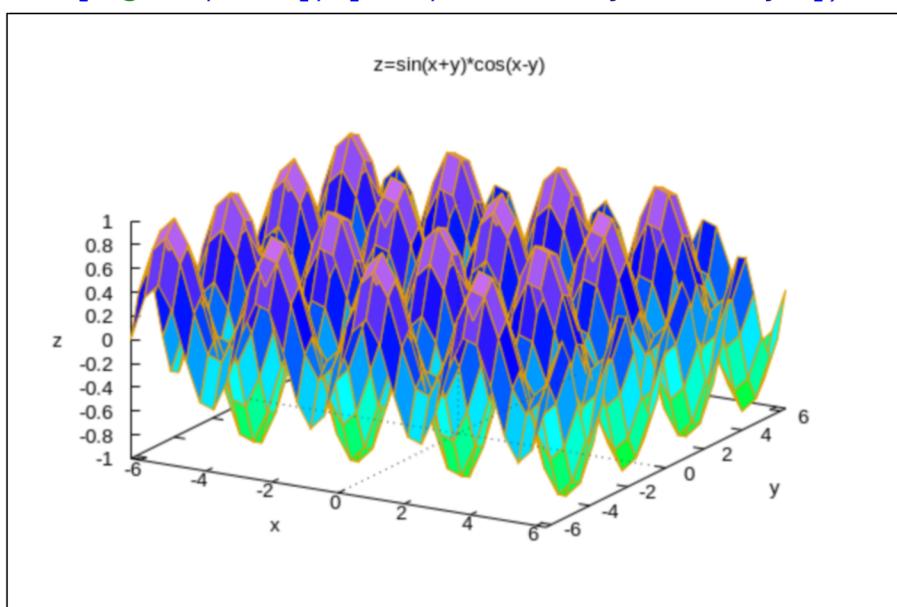
```
wxplot3d(x^2-y^2, [x,-2,2], [y,-2,2], same_xyz,  
[legend,false],[title,"z=x^2-y^2"])$
```

(%t2)



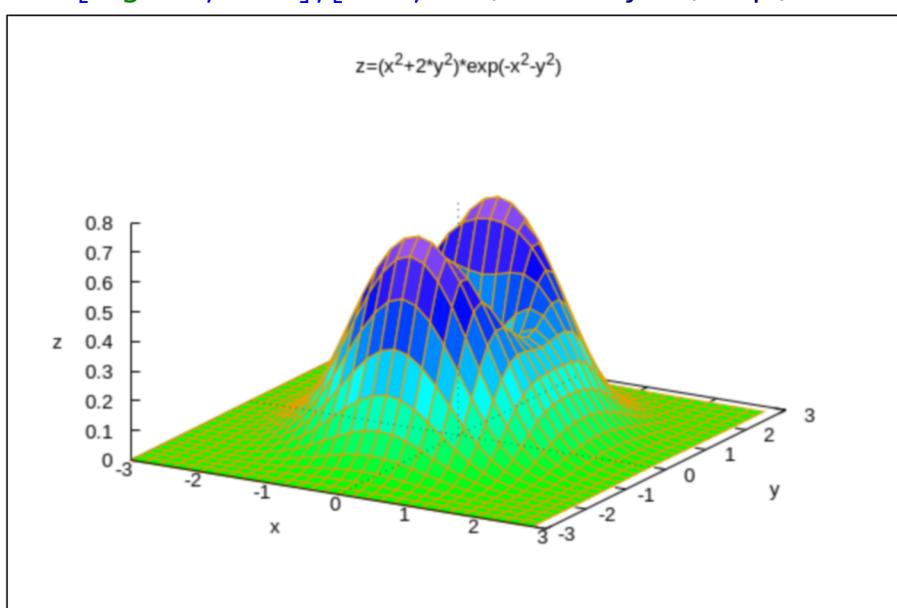
```
(%i3) wxplot3d(sin(x+y) · cos(x-y), [x,-2 · %pi,2 · %pi], [y,-2 · %pi,2 · %pi],  
[legend,false],[title,"z=sin(x+y)·cos(x-y)"])$
```

(%t3)



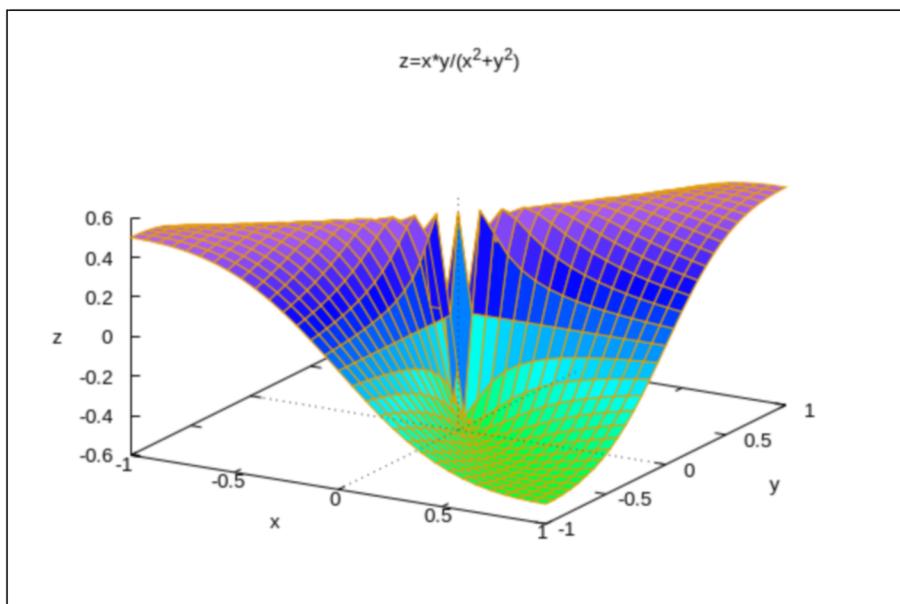
```
(%i4) wxplot3d((x^2+2 · y^2) · %e^(-x^2-y^2), [x,-3,3], [y,-3,3],  
[legend,false],[title,"z=(x^2+2*y^2)·exp(-x^2-y^2)"])$
```

(%t4)



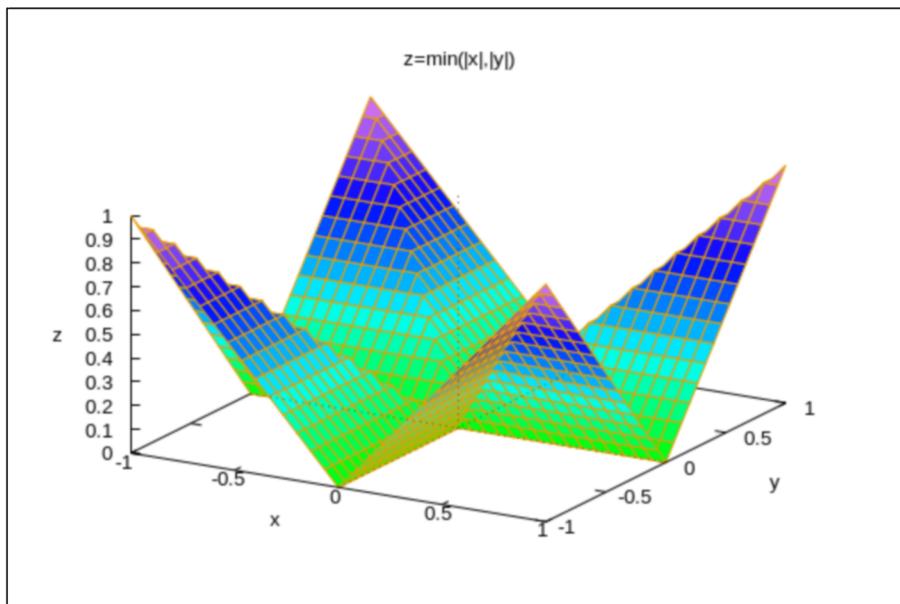
(%i5) / . The continuity breaks down at the origin. . /
wxplot3d(x · y/(x^2+y^2), [x,-1,1], [y,-1,1],
[legend,false],[title,"z=x·y/(x^2+y^2)"])\$

(%t5)



(%i6) / . This is partially differentiable with respect to x and y,
and not differentiable at the origin. . /
wxplot3d(min(abs(x),abs(y)), [x,-1,1], [y,-1,1],
[legend,false],[title,"z=min(|x|,|y|)"])\$

(%t6)



(%i7) / · the tangent plane of $z=(1-x^2-y^2)^{1/2}$ at $(1/2, 1/2, 1/2^{1/2})$ · /
wxplot3d([sqrt(1-x^2-y^2), -x/sqrt(2)-y/sqrt(2)+sqrt(2), [x, -1, 1], [y, -1, 1]],
same_xyz, [legend, false],
[title, "the tangent plane of $z=(1-x^2-y^2)^{1/2}$ at $(1/2, 1/2, 1/2^{1/2})$ "])

(%t7)

