

Mathématiques pour Informaticiens – Série 8
SOLUTIONS

1. (a) > `contourplot(min(abs(x),abs(y))+2*max(abs(x),abs(y)),x=-1..1,y=-1..1,1`
- (b) > `f1:=x^3/(1+4*y^2);`
> `f2:=ln(x+2*y^4);`
> `f3:=x+2*y;`
> `plot3D(f1,x=-1..1,y=-1..1,axes=boxed);`
> `plot3D(f2,x=-1..1,y=-1..1,axes=boxed);`
> `plot3D(f3,x=-1..1,y=-1..1,axes=boxed);`
- (c) > `with linalg;`
> `A:=matrix(3,3,[2,2,0,-2,1,0,0,2,1]);`
> `evalf(Eigenvals(A,vectors));`
> `print(vectors);`
- (d) > `p:=proc()`
> `local i,A;`
> `i:=1;`
> `while i<=10 do`
> `A:=randmatrix(2,2)`
> `if(MatrixNorm(A,2)>MatrixNorm(A,1) then`
> `print(A);`
> `i:=i+1;`
> `fi`
> `od`
- (e) > `J:=Jacobian([exp(a*x)*cos(y),exp(b*x)*sin(y)],[x,y]);`
> `Determinant(J);`
- (f) > `f:=sin(x)*exp(-2*x*y)+x*y^2;`
> `dxy:=diff(diff(f,x),y);`
> `dyx:=diff(diff(f,y),x);`