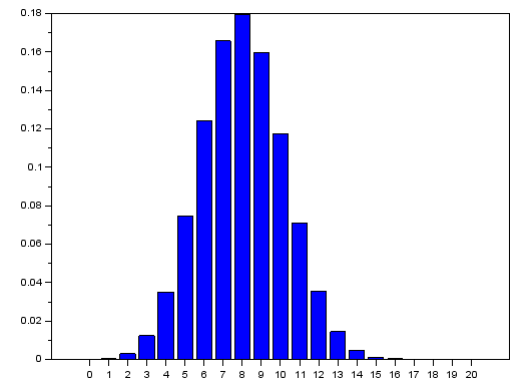


## Outils de Programmation 2 Graphisme en Scilab

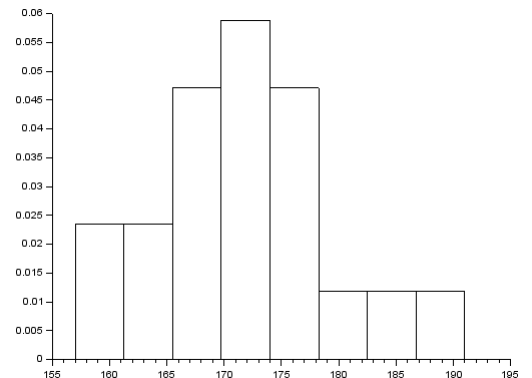
**Exemple 1.** la loi binomiale de paramètre 20 et 0.4 en un diagramme à barre

```
--> x=0:20;  
--> y=binomial(0.4,20);  
--> bar(x,y)
```



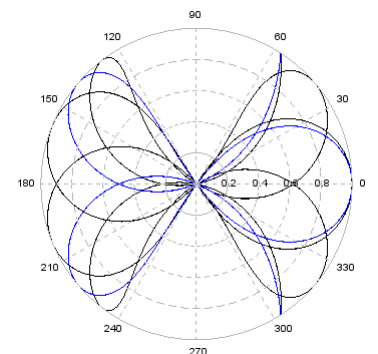
**Exemple 2.** la taille en cm de vingt personnes :

```
--> n=8;x=[162,164,191,166,166, 157,168,...  
--> 183,167,172,161,172,174,174, 177,...  
--> 175,172,176,175,182];  
--> histplot(n,x)
```



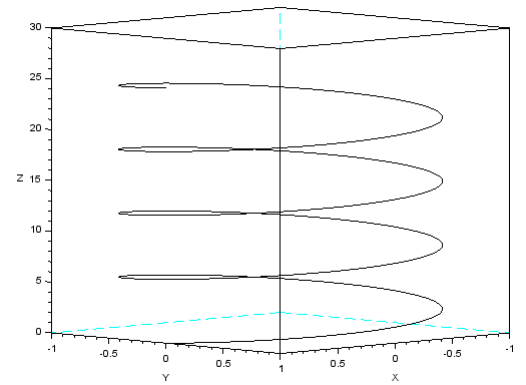
**Exemple 3.** polarplot: coordonnées polaires.

```
--> t=0:0.01:2*pi  
--> polarplot([sin(7*t') sin(6*t')], [cos(8*t') cos(8*t')]);
```

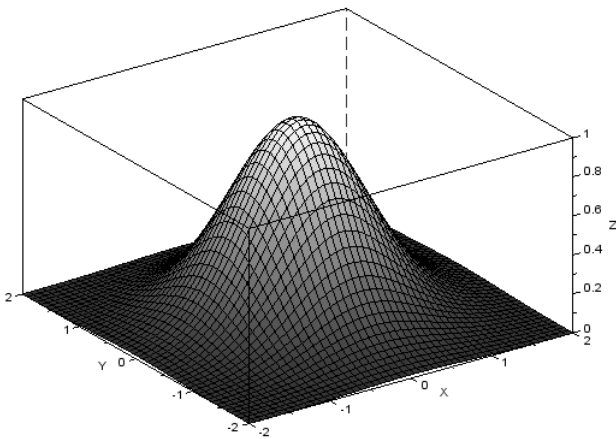


### Exemple 4.

```
--> t=0:%pi/32:8*%pi;
--> param3d(cos(t),sin(t),t);
```

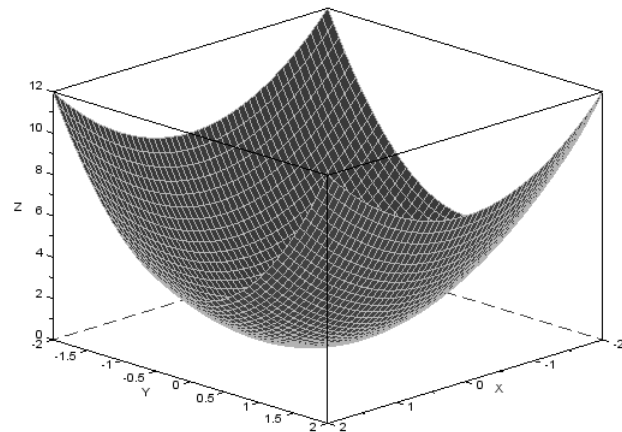


### Exemple 5.



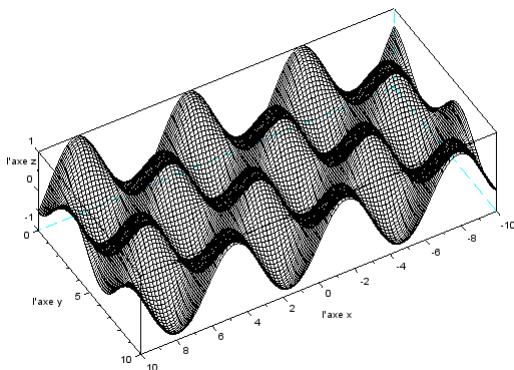
la fonction en cloche  $z = e^{x^2-y^2}$

```
function z=f(x,y);
z=exp(-x^2 -y^2);
endfunction
x=linspace(-2,2,50);y=x;
Z=feval(x,y,f);
surf(x,y,Z);
```



$z = 2x^2 + 2y^2$  (paraboloïde elliptique)

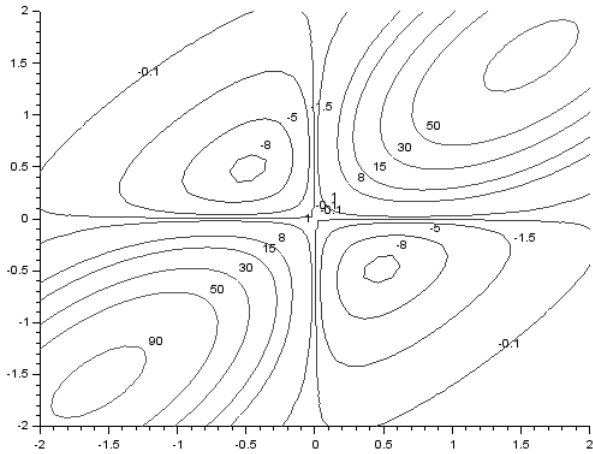
```
function z=f(x,y)
z=2*x^2+y^2;
endfunction
x=linspace(-2,2,50);
y=linspace(-2,2,50);
z=(feval(x,y,f))';
plot3d(x,y,z)
```



la fonction  $z = \sin x \cos y$

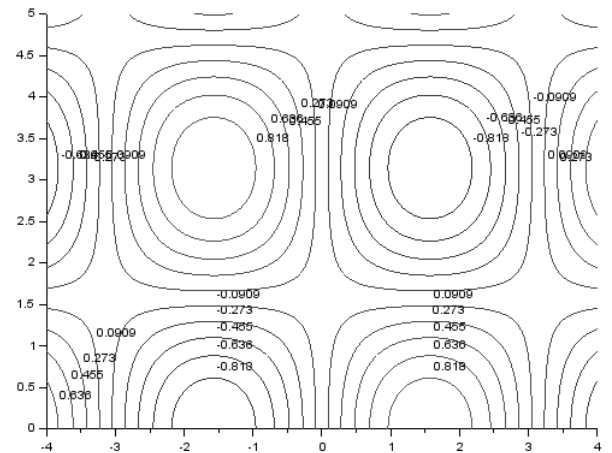
```
--> x=linspace(-10,10); y=linspace(0,10);
--> z=sin(x)'*cos(y);
-->plot3d(x,y,z,60,70,'l''axeX@l''axeY@l''axeZ',[0,2,4])
```

### Exemple 6. Courbes de niveau



courbes de niveau de  $z = 100 \sin x \sin y e^{-x^2 + 2xy - y^2}$

```
n=40;
x=linspace(-2,2,n);y=x;
Z=100*sin(x')*sin(y) .* ...
(exp(-(x^2)'*ones(1,40)+...
2*x'*y-ones(n,1)*y^2));
l=[-8 -5 -1.5 -0.1 1 8 15 30 50 90];
contour(x,y,Z,l)
```

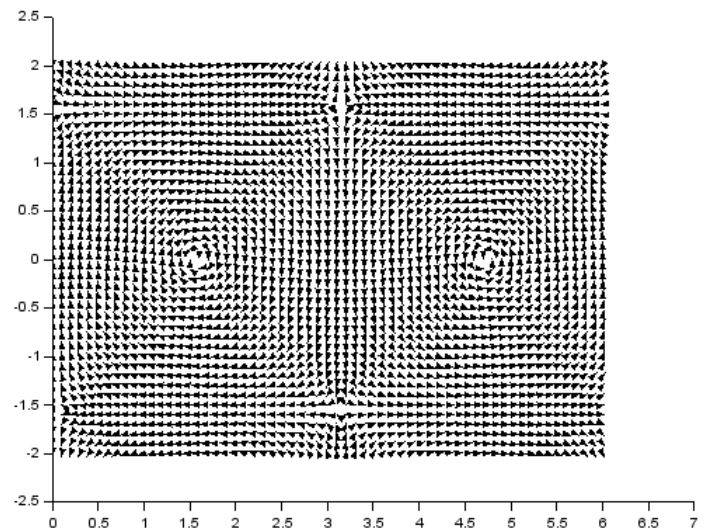


$z = \sin x \cos y$

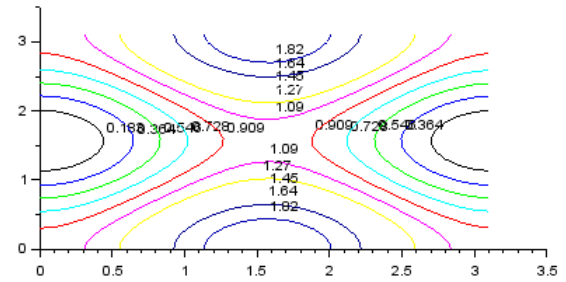
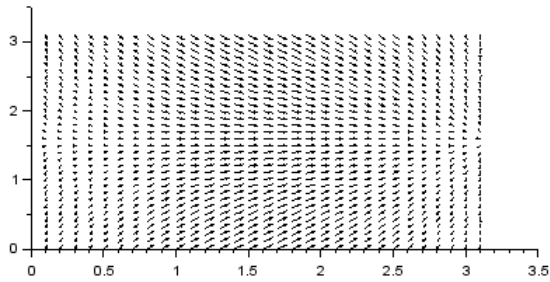
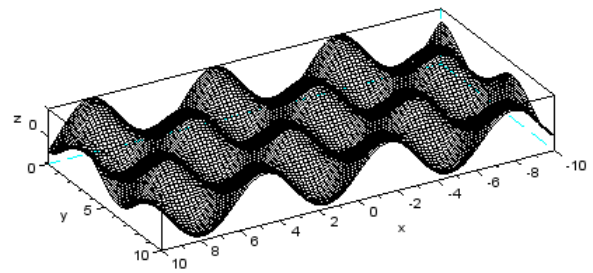
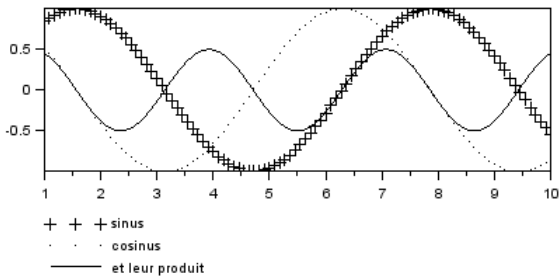
```
x=linspace(-4,4); y=linspace(0,5,50);
deff(' [z]=f(x,y) ', 'z=sin(x)*cos(y) ');
fcontour(x,y,f,10)
```

### Exemple 7. Champ de vecteurs

```
--> x=0:0.1:6;y=-2:0.1:2;
--> u=sin(x)'*sin(y);
--> v=cos(x)'*cos(y);
--> champ(x,y,u,v,1)
```



### Exemple 8. Plusieurs graphiques dans une même fenêtre



```

xsetech([0,0,0.5,0.5]);
x=linspace(-10,10); y=linspace(0,10);
x=linspace(1,10)';
xx=[x,x,x];yy=[sin(x),cos(x),sin(x).*cos(x)];
legende='sinus@cosinus@et leur produit'
plot2d(xx,yy,[-1,0,1], '121',legende);
//
xsetech([0.5,0,0.5,0.5]);
x=linspace(-10,10); y=linspace(0,10);
z=sin(x)'.*cos(y);
plot3d(x,y,z,60,70,'x@y@z',[0,2,4])
//
xsetech([0.,0.5,0.5,0.5]);
x=0:0.1:%pi; y=0:0.1:%pi;
u=sin(x)'.*ones(1,length(y));
v=ones(1,length(x))'.*cos(y);
champ(x,y,u,v,1)
xsetech([0.5,0.5,0.5,0.5]);
deff('[z]=f(x,y)', 'z=sin(x)^2+cos(y)^2');
fcontour(x,y,f,10)

```