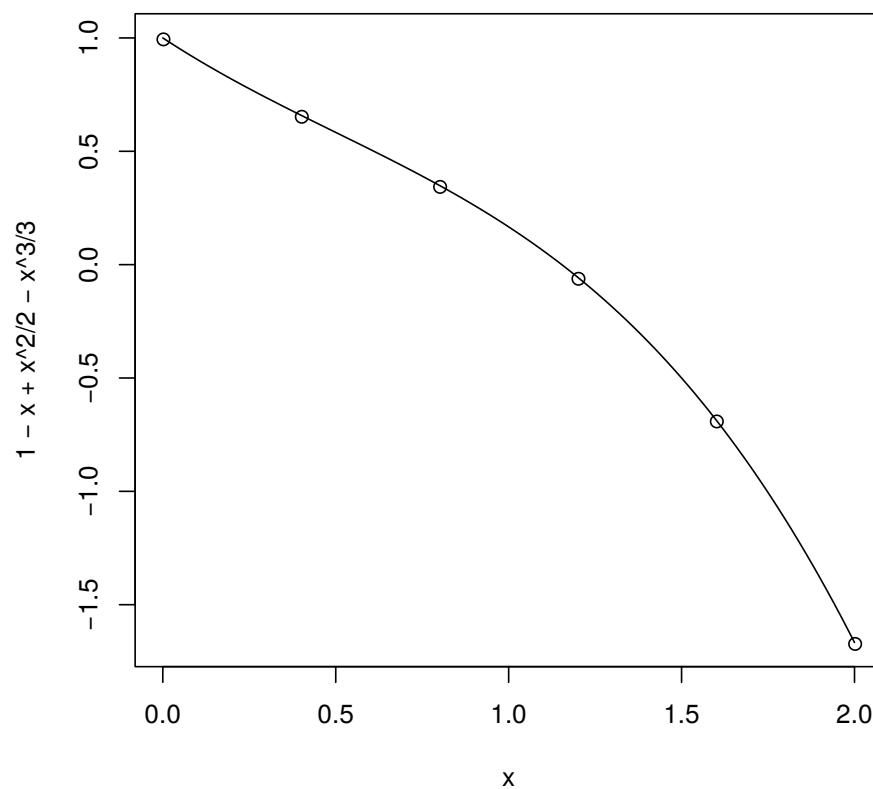


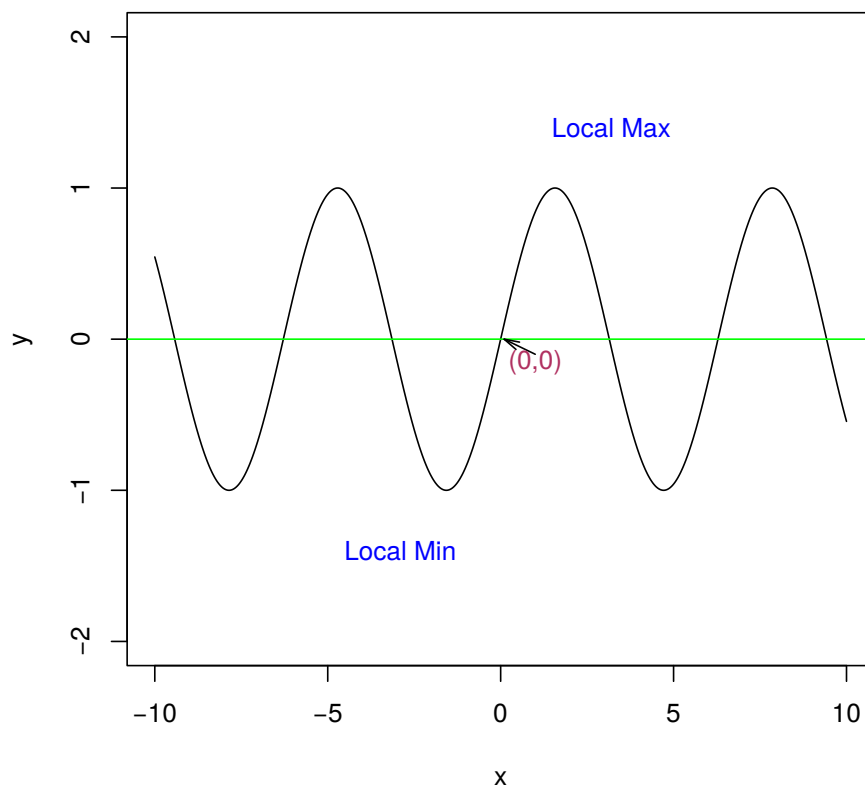
1. `curve`

```
> curve(1-x+x^2/2-x^3/3,0,2)
> x = seq(0,2,.4)
> y = 1-x+x^2/2-x^3/3
> points(x,y)
```



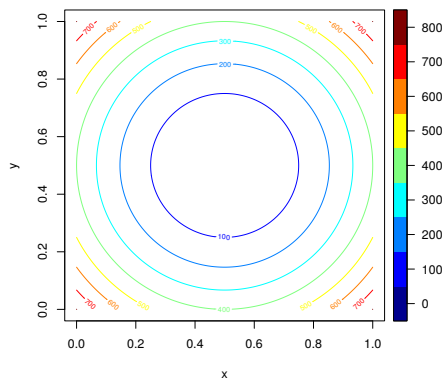
2. plot

```
> x = seq(-10,10, by= 0.01)
> y = sin(x)
> plot(x,y,ylim= c(-2,2), type= "l")
> abline(h= 0, col= "green")
> text(3.2,1.4, "Local Max", col= "blue")
> text(-2.9,-1.4,"Local Min", col= "blue")
> arrows(1,-.1,.1,0,length= 0.1,angle= 15)
> text(1,-.15,"(0,0)", col= "maroon")
```

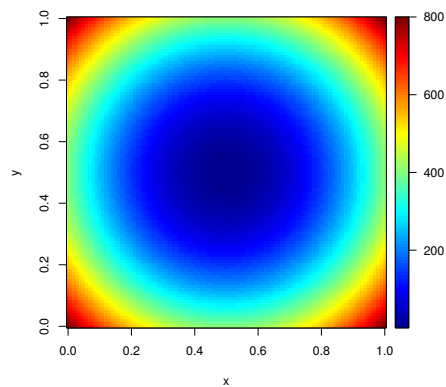


3. persp3d

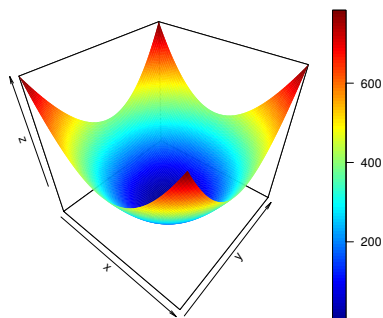
```
> x <- seq(-20, 20, length = 100)
> y <- seq(-20,20, length = 100)
> f = function(x,y){x^2+y^2}
> z = outer(x,y,f)
> require(plot3D)
> contour2D(z)
```



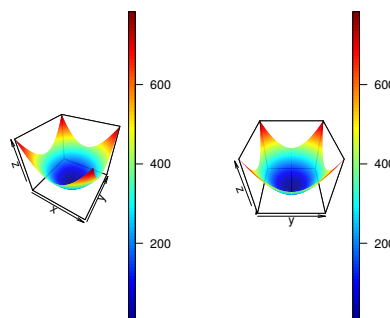
```
> x <- seq(-20, 20, length = 100)
> y <- seq(-20,20, length = 100)
> f = function(x,y){x^2+y^2}
> z = outer(x,y,f)
> require(plot3D)
> image2D(z)
```



```
> x <- seq(-20, 20, length = 100)
> y <- seq(-20,20, length = 100)
> f = function(x,y){x^2+y^2}
> z = outer(x,y,f)
> require(plot3D)
> persp3D(x,y,z)
```



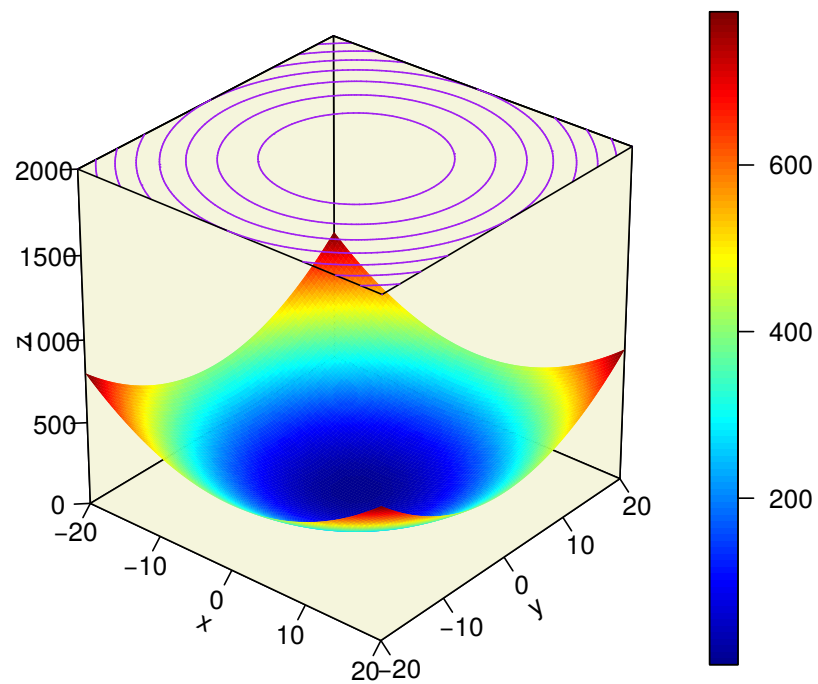
```
> x <- seq(-20, 20, length = 100)
> y <- seq(-20,20, length = 100)
> f = function(x,y){x^2+y^2}
> z = outer(x,y,f)
> require(plot3D)
> par(mfrow= c(1,2))
> persp3D(x,y,z, theta = 30)
> persp3D(x,y,z, theta = 90)
```



```

> x <- seq(-20, 20, length = 100)
> y <- seq(-20,20, length = 100)
> f = function(x,y){x^2+y^2}
> z = outer(x,y,f)
> require(plot3D)
> persp3D(x,y,z, contour= list(side = "2000", col = "purple"), zlim = c(0,2000), phi = 30, d =
10, col.panel= "beige", bty = "u", ticktype= "detailed")

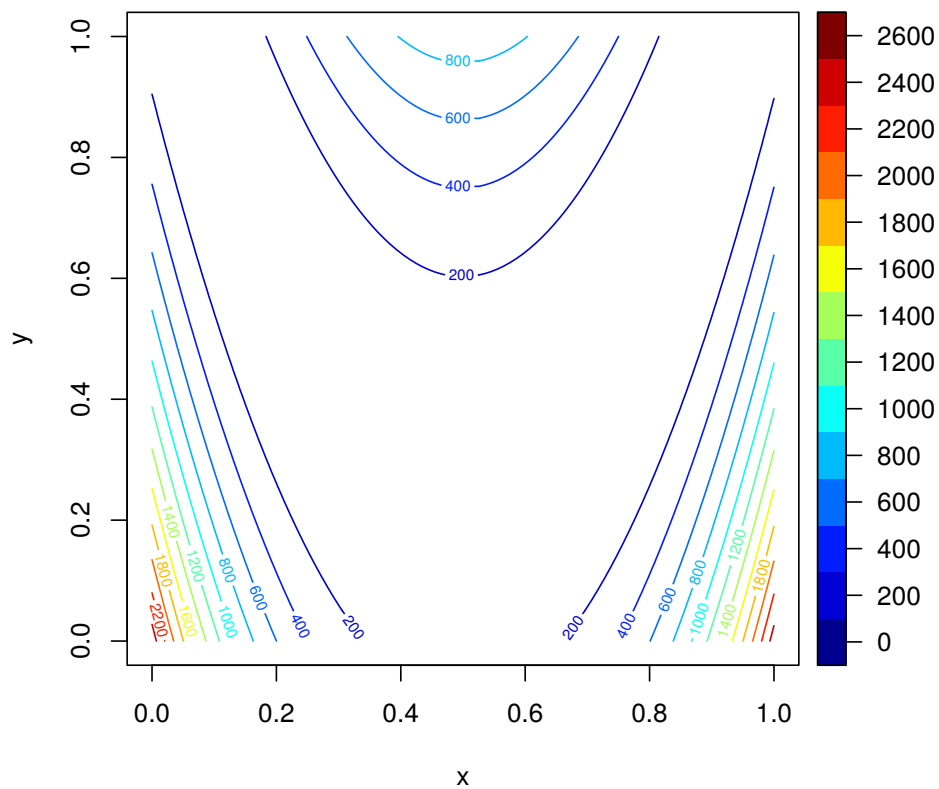
```



```

> x <- seq(-2, 2, length = 100)
> y <- seq(-1,3, length = 100)
> f = function(x,y){100*(y-x^2)^2+(1-x)^2}
> z = outer(x,y,f)
> require(plot3D)
> contour2D(z)

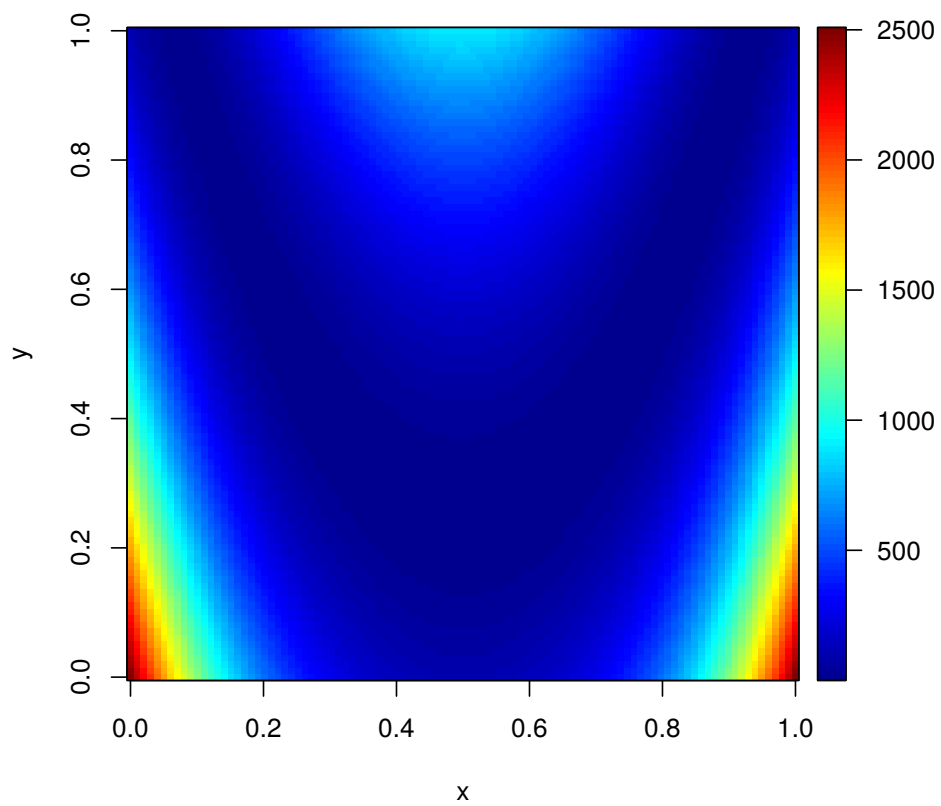
```



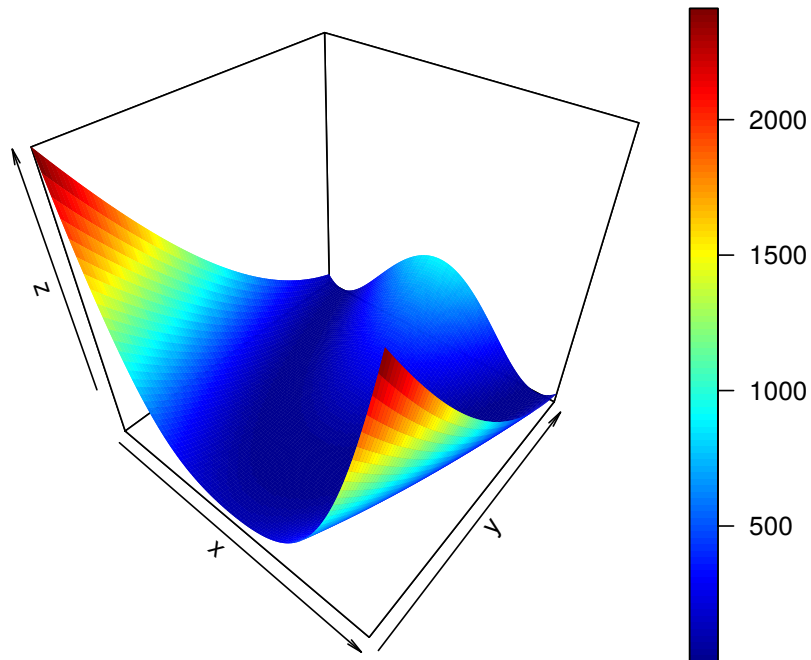
```

> x <- seq(-2, 2, length = 100)
> y <- seq(-1,3, length = 100)
> f = function(x,y){100*(y-x^2)^2+(1-x)^2}
> z = outer(x,y,f)
> require(plot3D)
> image2D(z)

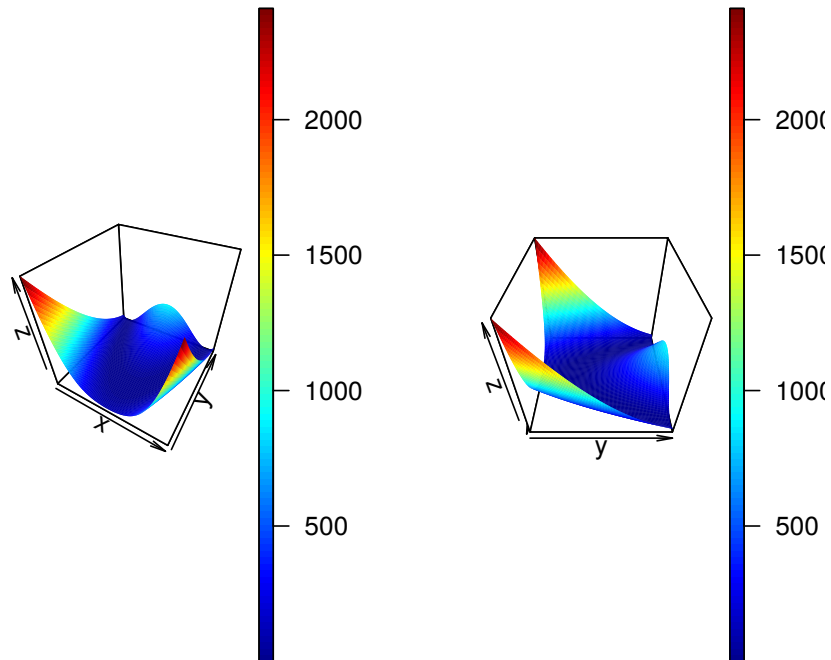
```



```
> x <- seq(-2, 2, length = 100)
> y <- seq(-1, 3, length = 100)
> f = function(x,y){100*(y-x^2)^2+(1-x)^2}
> z = outer(x,y,f)
> require(plot3D)
> persp3D(x,y,z)
```



```
> x <- seq(-2, 2, length = 100)
> y <- seq(-1,3, length = 100)
> f = function(x,y){100*(y-x^2)^2+(1-x)^2}
> z = outer(x,y,f)
> require(plot3D)
> par(mfrow= c(1,2))
> persp3D(x,y,z, theta = 30)
> persp3D(x,y,z, theta = 90)
```



```
> x <- seq(from = -2, to = 2, length = 100)
> y <- seq(from = -1, to = 3, length = 100)
> f = function(x,y){100*(y-x^2)^2+(1-x)^2}
> z = outer(x,y,f)
> require(plot3D)
> persp3D(x,y,z, contour= list(side= 2500, col = "purple"), theta= 50, phi = 30, d = 10, col.panel= "beige",
"u", ticktype= "detailed")
```

