

Essential Maple 7

Robert M. Corless
Department of Applied Mathematics
University of Western Ontario
London, Canada

Copyright

Copyright 2001 by Robert M. Corless
All rights reserved

Chapter 2: Useful one-word commands

Section 2.7: Plotting in Maple

Session 2.7.2: Three-dimensional plots

```
> restart;

> sp := [rho*cos(2*Pi*t), rho*sin(2*Pi*t), 0, radius=b]:

> pc := n -> [ (rho-r*cos(2*Pi*t))*cos(2*Pi/(n+t)),
(rho-r*cos(2*Pi*t))*sin(2*Pi/(n+t)),
-r*sin(2*Pi*t)]:

> rho, r, b := 3, 1.1, 1;
```

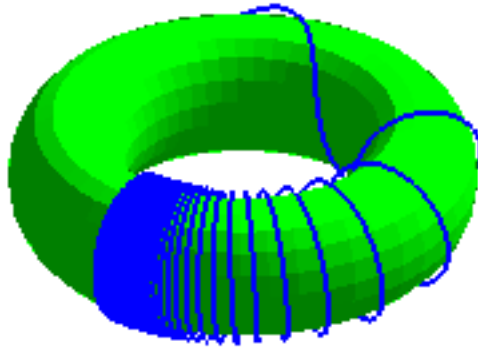
$\rho, r, b := 3, 1.1, 1$

```
> with(plots):
```

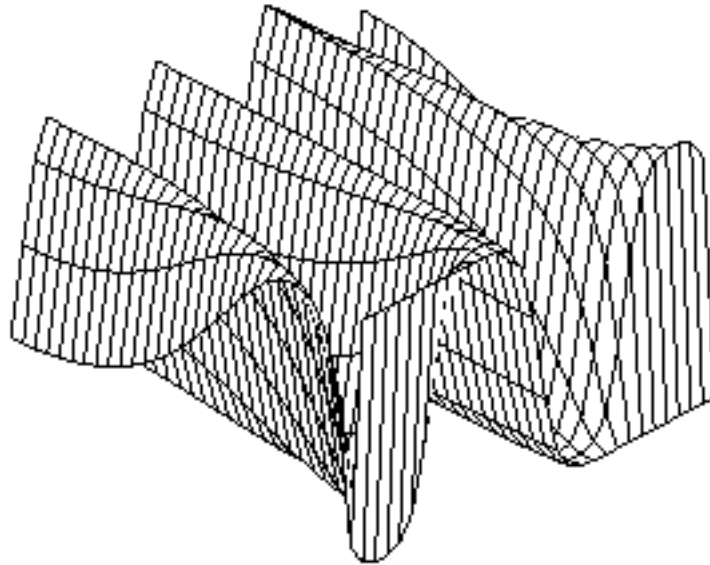
Warning, the name `changecoords` has been redefined

```
> s := spacecurve( {seq(pc(k), k=1..50)}, t=0..1, thickness=2,
colour=blue, view=[-4.4..4.4, -4.4..4.4, -2.2..2.2]):
```

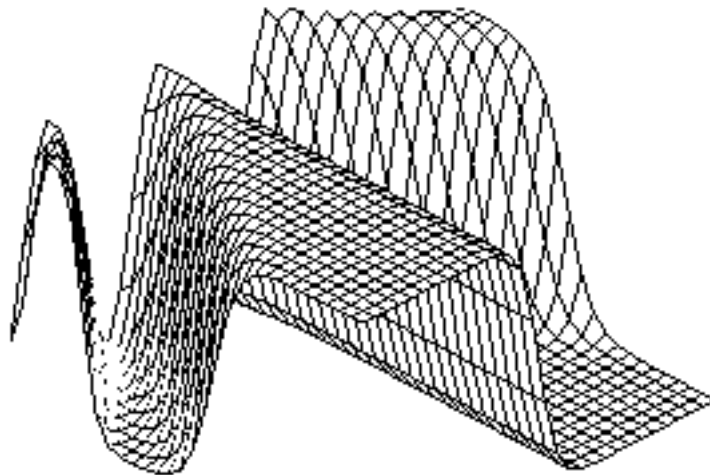
```
> s2 := tubeplot( sp, t=0..1, tubepoints=20, colour=green, view=[-4.4..4.4, -4.4..4.4, -2.2..2.2],  
style=PATCHNOGRID, lightmodel=light2 );  
  
> display( {s,s2} );
```



```
> restart;  
  
> plot3d( JacobiSN(x,y),x=-10..10, y=0..0.999999,grid=[30,30],  
colour=black, style=HIDDEN );
```



```
> plot3d( JacobiSN(x,1-10^(-y)),x=-10..10, y=0..6,grid=[30,30],  
colour=black, style=HIDDEN );
```



```
> restart;
```

```
> w := u+ I*v;
```

$$w := u + I v$$

```
> z := sin( w );
```

$$z := \sin(u + I v)$$

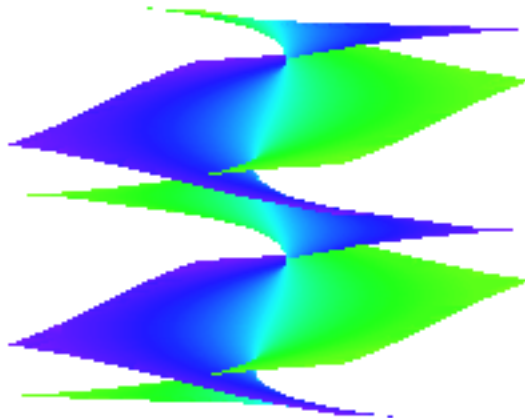
```
> x := evalc( Re(z) );
```

$$x := \sin(u) \cosh(v)$$

```
> y := evalc( Im(z) );
```

$$y := \cos(u) \sinh(v)$$

```
> plot3d( [x,y,u], u=-6..6, v=-6..6, grid=[50,50], colour=v, style=PATCHNOGRID, axes=NONE, scaling=CONSTRAINED, orientation=[30,84], view=[-6..6,-6..6,-6..6] );
```



```
>
```

```
>
```