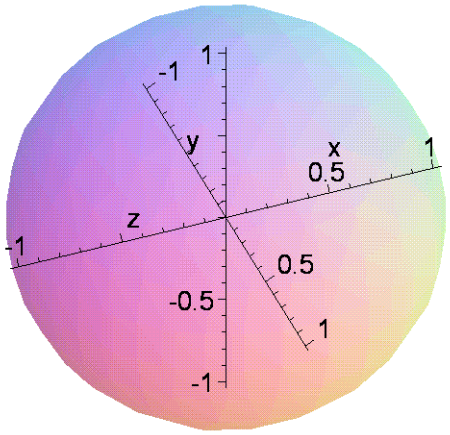
Cylinders and Quadratic Surfaces

```
> restart:
> with(plots): with(Student[Calculus1]):
Warning, the name changecoords has been redefined
```

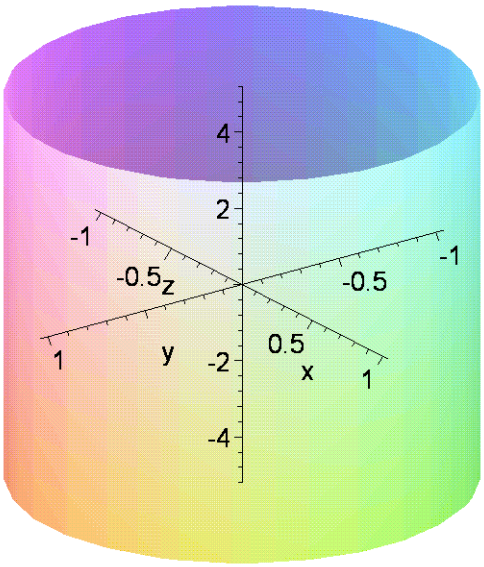
Plot of the sphere $x^2 + y^2 + z^2 = 1$

```
> implicitplot3d(x^2+y^2+z^2=1,x=-1..1,y=-1..1,z=-1..1);
```



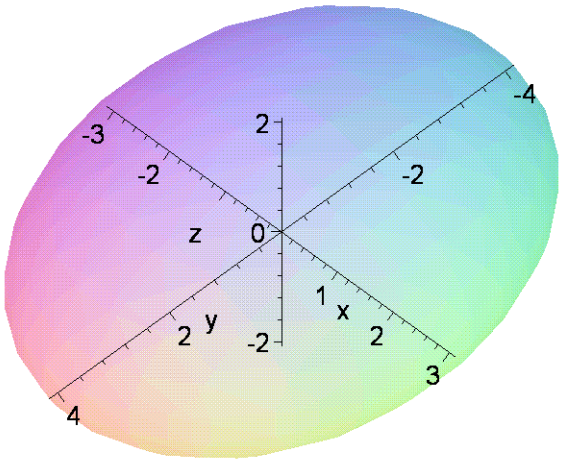
Plot of the cylinder $x^2 + y^2 = 1$

```
> implicitplot3d(x^2+y^2=1,x=-1..1,y=-1..1,z=-5..5);
```



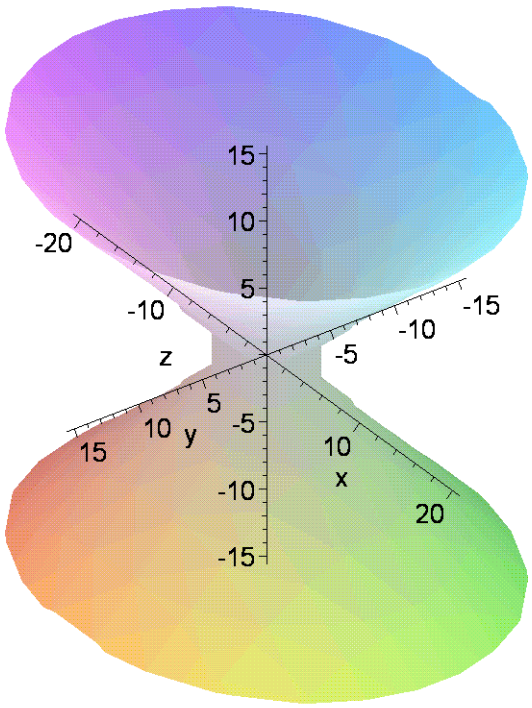
Plot of the Ellipsoid $\frac{x^2}{16}+\frac{y^2}{9}+\frac{z^2}{4}=1$

```
> implicitplot3d(x^2/16+y^2/9+z^2/4=1,x=-4..4,y=-3..3,z=-2..2);
```

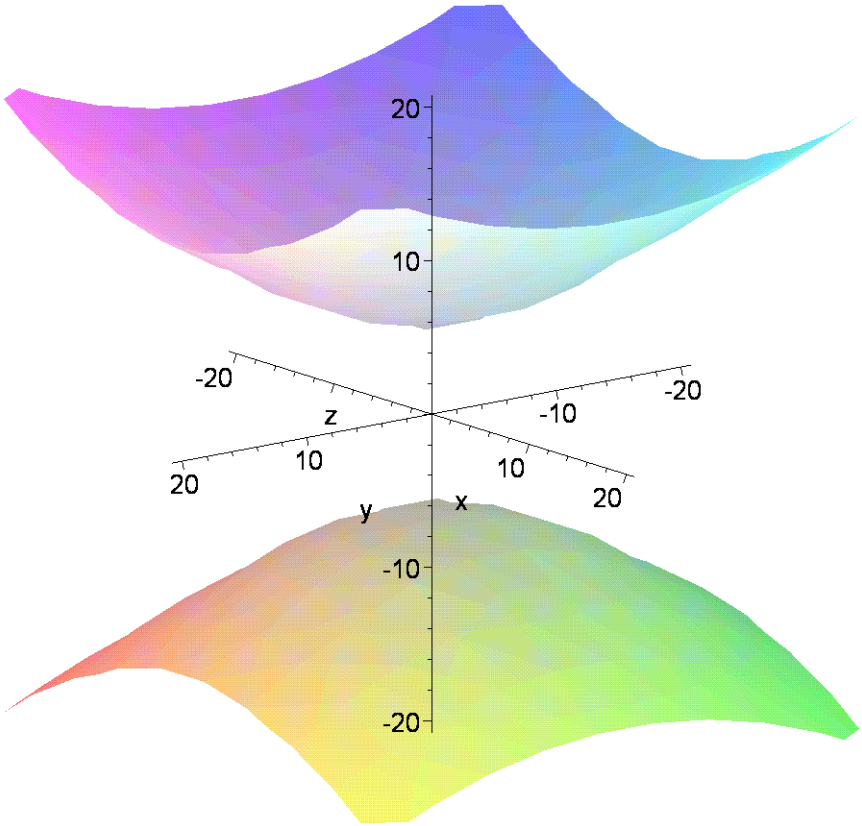


Plot of the Hyperbolied of one sheet $\frac{x^2}{10}+\frac{y^2}{15}-\frac{z^2}{10}=1$

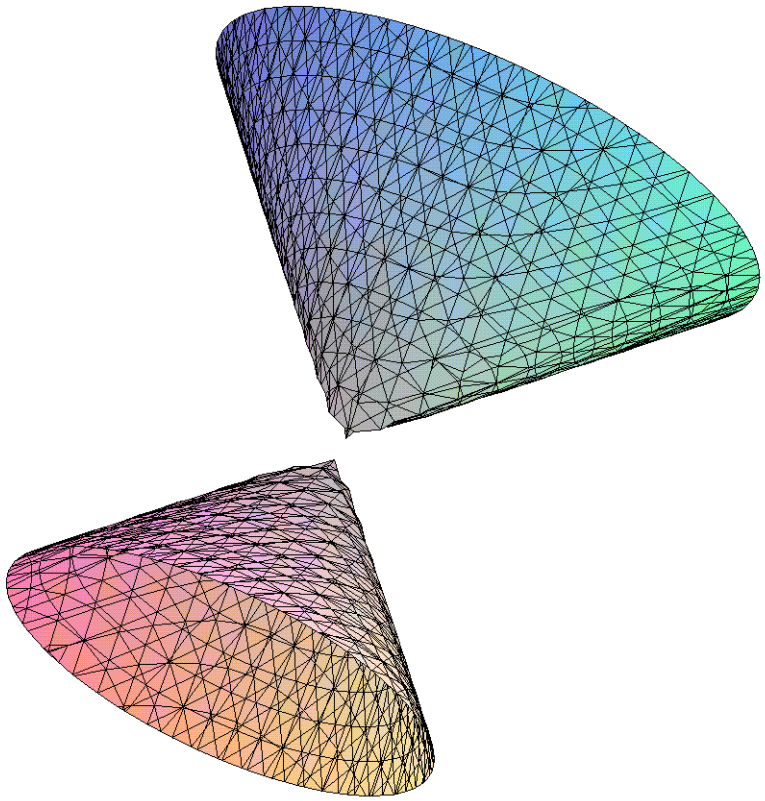
```
> implicitplot3d(x^2/10+y^2/15-z^2/10=1,x=-15..15,y=-2\0..20,z=-15..
  15);
```



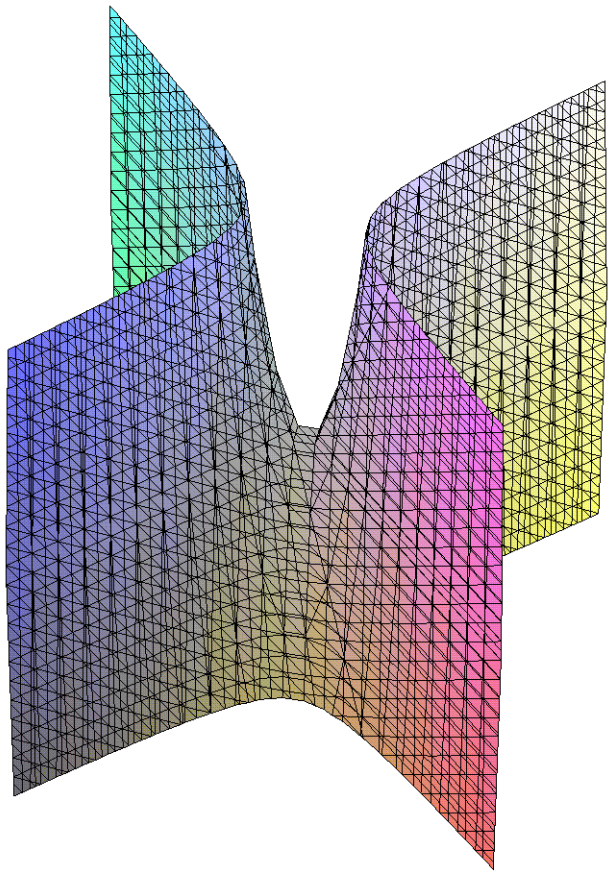

```
> implicitplot3d(4*x^2/10+9*y^2/15-z^2=-36,x=-20..20,y=-20..20,z=-20
  ..20);
```



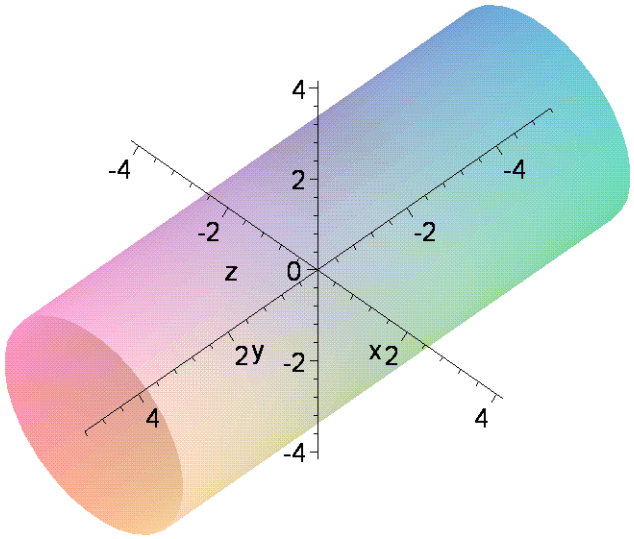

```
> implicitplot3d(x^2-y^2-z^2-4*x-2*y-2*z+1=0,x=-17..17,y=-20..20,z=-
  25..25,numpoints=10000);
```



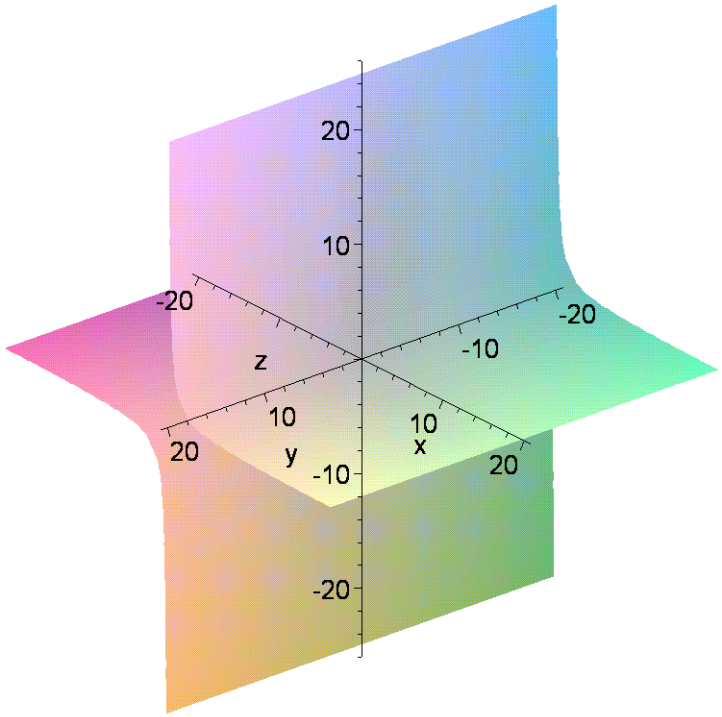
```
> implicitplot3d(x^2-y^2=z,x=-20..20,y=-20..20,z=-25..25,numpoints=1
  0000);
```



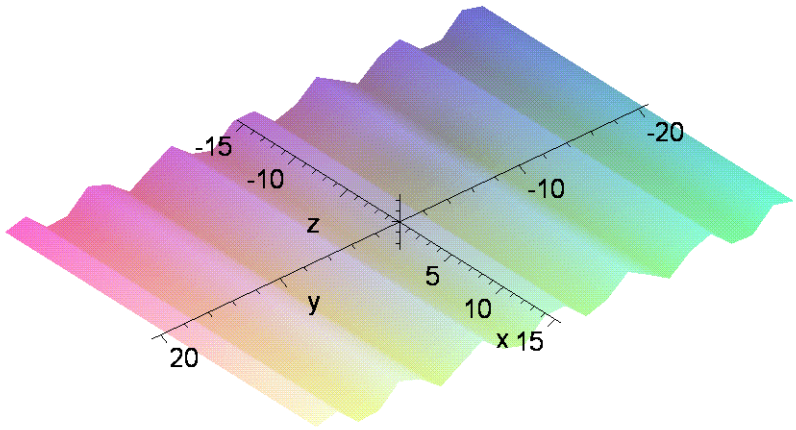
```
> implicitplot3d(y^2+z^2=4,x=-5..5,y=-4..4,z=-4..4,numpoints=10000);
```



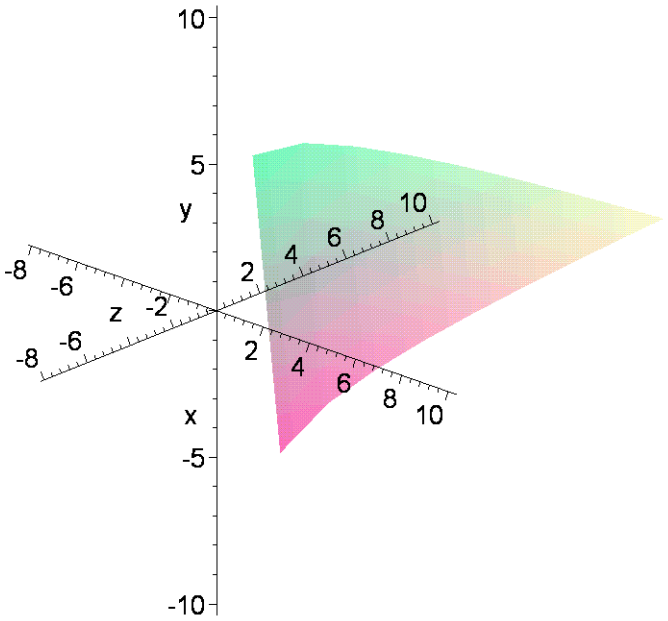

```
> implicitplot3d(y*z=4,x=-20..20,y=-20..20,z=-25..25,numpoints=10000
  );
>
```




```
> implicitplot3d(z=cos(x),x=-20..20,y=-15..15,z=-2..2,numpoints=1000
  0);
```




```
> implicitplot3d(z=log(x+y-1),x=-10..10,y=-10..10,z=-10..10);
```


10
5
y
-5
-10
x
z
-8
-6
-2
2
4
6
8
10

>