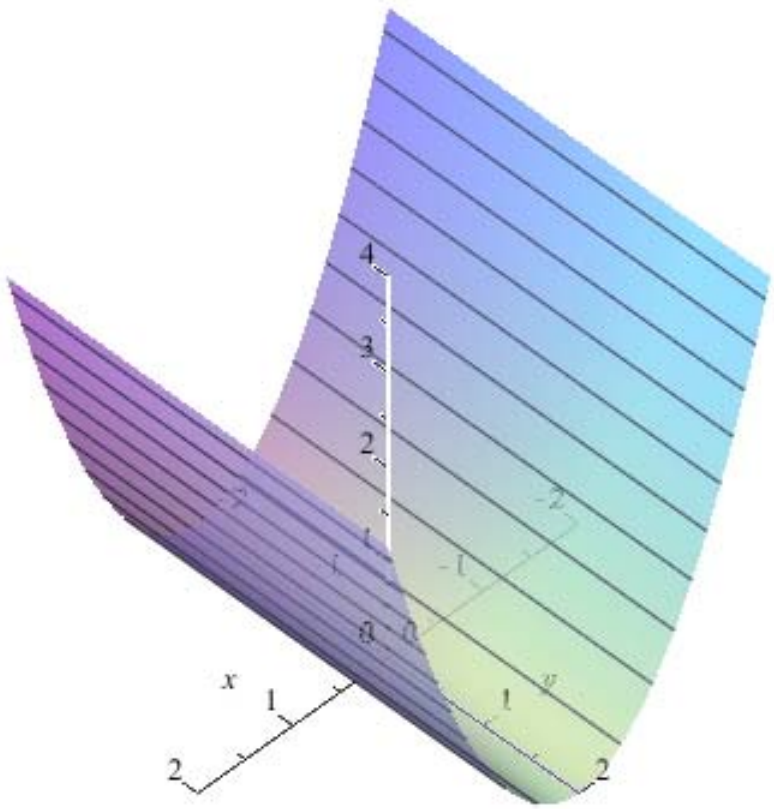
These are the surfaces we discussed in class

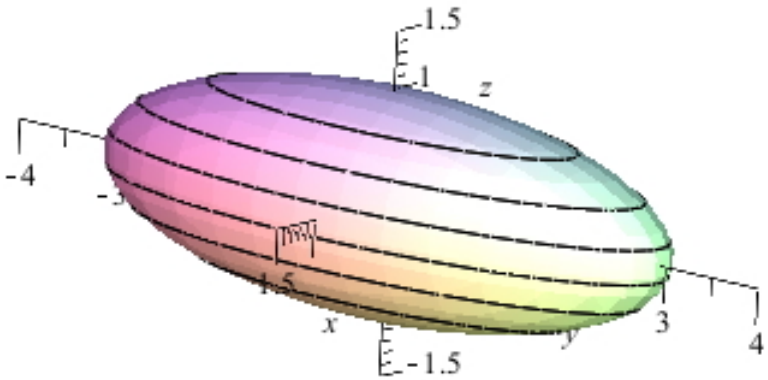
Cylinder (parabolic cylinder in fact)

```
> plot3d(x^2,x=-2..2,y=-2..2);
```



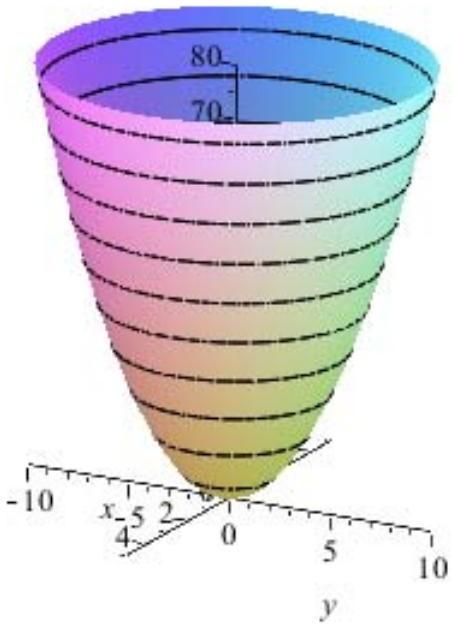
Ellipsoid

```
> with(plots):implicitplot3d(x^2+y^2/9+z^2=1,x=-1.5..1.5,y=-4..4,z=-1.5..1.5,
numpoints=1600);
```



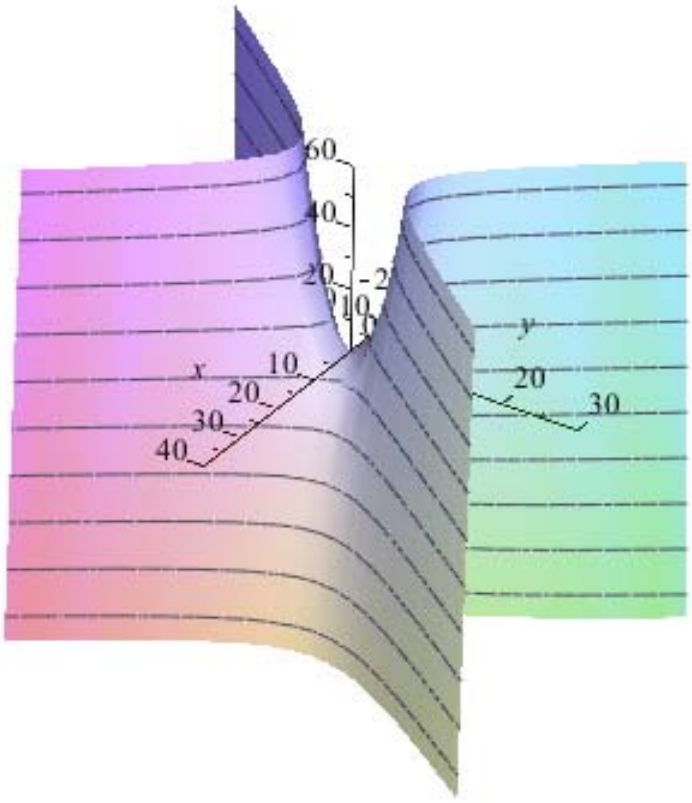
Elliptic paraboloid

> **plot3d(4*x^2+y^2,x=-5..5,y=-10..10,view=0..80);**



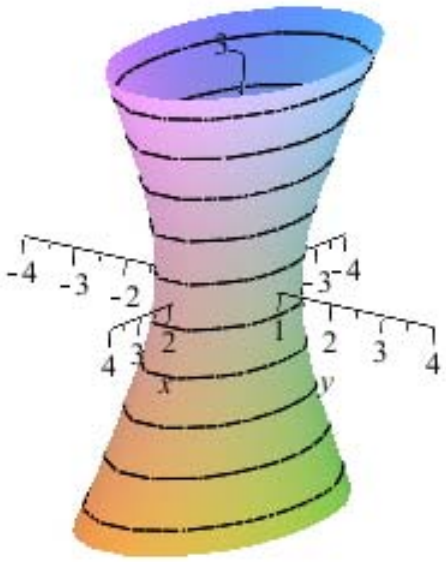
Hyperbolic paraboloid

> **plot3d(y^2-x^2,x=-40..40,y=-30..30,view=-90..90);**



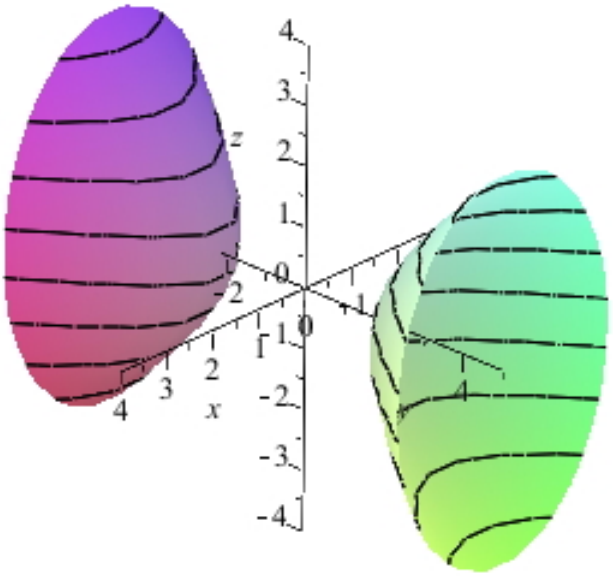
Hyperboloid of 1 sheet

> **implicitplot3d(x^2/4+y^2-z^2/4=1,x=-4..4,y=-4..4,z=-3..3,numpoints=1600);**



Hyperboloid of 2 sheets

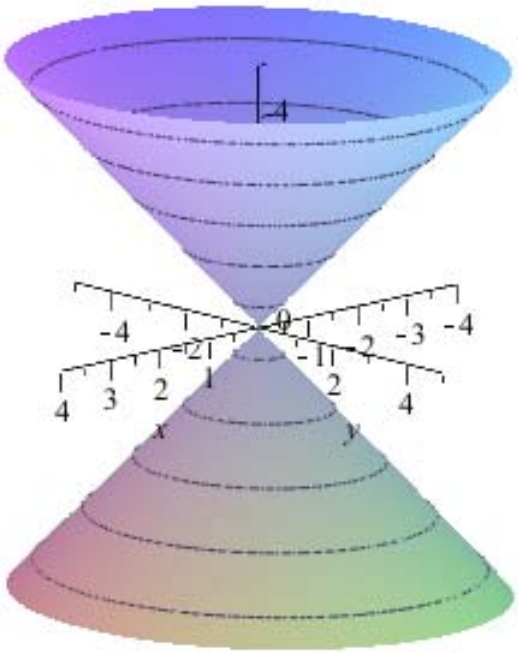
> **implicitplot3d(y^2/4-x^2-z^2/2=1,x=-4..4,y=-5..5,z=-4..4,numpoints=1600);**



Elliptic cone

(For this next one, if you are using a slow computer (<500 MHz say) then change the 90000 to something less, like 1600. Your graph will be less accurate though - especially near the origin.)

> **implicitplot3d(z^2=2*x^2+y^2,x=-4..4,y=-5..5,z=-5..5,numpoints=90000);**



Now try playing around with these yourself.