

```

[ > with(plots):
[ > plot(BesselJ(0,x), x=-10..10);
[ > a := fsolve(BesselJ(0,x)=0,x,5..6);
[                                     a := 5.520078110
[ > taylor( BesselJ(0,x), x=0,16);
[

$$1 - \frac{1}{4}x^2 + \frac{1}{64}x^4 - \frac{1}{2304}x^6 + \frac{1}{147456}x^8 - \frac{1}{14745600}x^{10} + \frac{1}{2123366400}x^{12} - \frac{1}{416179814400}x^{14} +$$


$$O(x^{16})$$

[ > animate3d([r*cos(u),r*sin(u),BesselJ(0,a*r)*cos(t)],r=0..1,u=0..2*
[   Pi,t=0..2*Pi);
[ > plot(BesselJ(2,x),x=0..10);
[ > R := fsolve(BesselJ(2,x)=0,x,4..6);
[                                     R := 5.135622302
[ > z := (r,theta,t) -> BesselJ(2,R*r)*cos(2*theta)*cos(t);
[                                     z := (r,θ,t) → BesselJ(2,Rr)cos(2θ)cos(t)
[ > animate3d([r*cos(theta),r*sin(theta),z(r,theta,t)],theta=0..2*Pi,r
[   =0..1,t=0..2*Pi,grid=[30,30],frames=20);
[ >
[ Oh baby, is that cool, or what!

```