**simplePendulumDemoFinal**

```
float rodX, rodY;
float damping =0.99;
int diameter = 50;
float ellipseX, ellipseY;
float theta;
int amplitude = 100;
float angularVelocity, angularAcceleration;
void setup() {
 rodX = 0;
 rodY = amplitude;
 ellipseX = 0;
 ellipseY = rodY+diameter/2;
 theta = 0;
 angularVelocity =0;
 size(800, 600);
 background(150);
 //frameRate(2);
}

void draw() {
 background(150);
 angularAcceleration  = -0.01 * sin(theta-PI/2) * damping;
 angularVelocity +=angularAcceleration;
 angularVelocity *=damping;
 theta +=angularVelocity;
 rodX =  amplitude *cos(theta);
 rodY =  amplitude *sin(theta) ;
 ellipseX = (amplitude + diameter/2)*cos(theta);
 ellipseY = (amplitude + diameter/2)*sin(theta);
 translate(width/2, height/2);
 line(0, 0, rodX, rodY);
 ellipse(ellipseX, ellipseY, diameter, diameter);
}
```