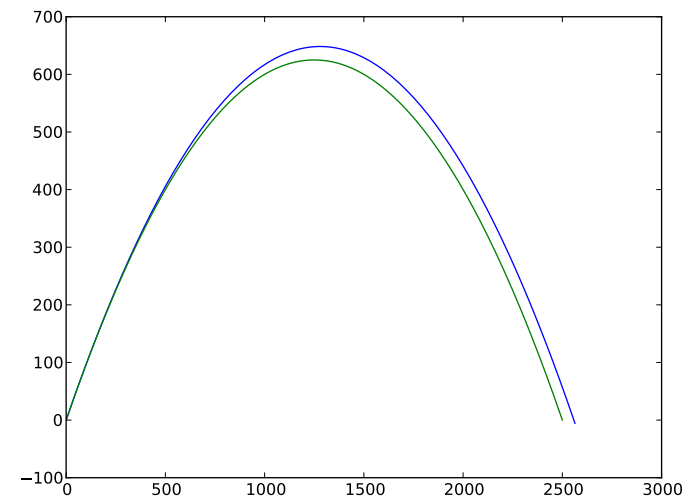


```

0  ### -*- coding: cp1252 -*-
1  """
2  Calcul de la trajectoire d'un missile balistique
3  en tenant compte de la force de Coriolis
4  """
5  from __future__ import division
6  from pylab import *
7  from scipy import *
8  from scipy.integrate import odeint
9  from mpl_toolkits.mplot3d import Axes3D
10
11 #initialisation
12 g = 10.e-3
13 alpha = pi/4
14 lam = pi/4
15 T = 24.*3600.
16 Omega = 2*pi/T
17 v0 = 5 # en km/s
18
19 x_ini = 0
20 y_ini = 0
21 z_ini = 0
22 vx_ini = 0
23 vy_ini = v0*cos(alpha)
24 vz_ini = v0*sin(alpha)
25 tini = 0
26 tfin = 735.
27 Npas = 140.
28
29 def F(Y, t):
30     [x, vx, y, vy, z, vz] = Y
31     eq1 = vx
32     eq2 = 2*Omega*vy*sin(lam)
33     eq3 = vy
34     eq4 = -2*Omega*(vx*sin(lam) + vz*cos(lam))
35     eq5 = vz
36     eq6 = -g + 2*Omega*vy*cos(lam)
37     return [eq1, eq2, eq3, eq4, eq5, eq6]
38
39 cond_ini = [x_ini, vx_ini, y_ini, vy_ini, z_ini, vz_ini]
40
41 t = linspace(tini, tfin, Npas)
42 Yn = odeint(F, cond_ini, t)
43 [x, vx, y, vy, z, vz] = Yn.T
44
45 y_th = linspace(0, 2500, 300)
46 x_th = zeros(size(y_th))
47 z_th = -1./2*g*(y_th/(v0*cos(alpha)))**2 + y_th*tan(alpha)
48 figure(1)
49 plot(y, z, '-', color='b')
50 plot(y_th, z_th, '-', color='g')
51 show()

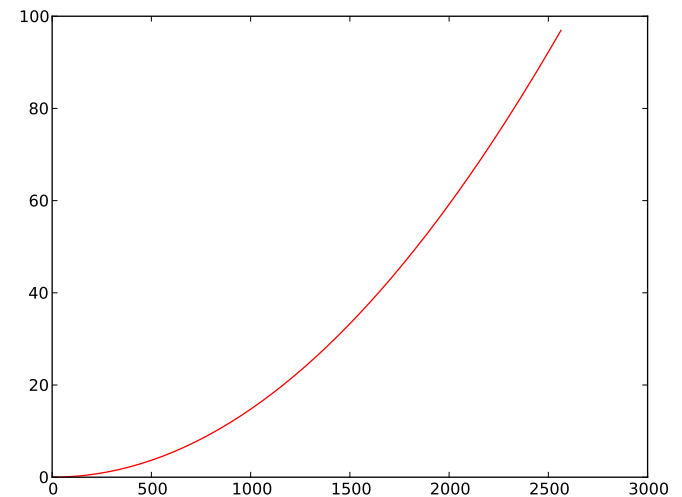
```



```

54 figure(2)
55 plot(y, x, color='r')
56 show()

```



```

58 fig=figure(3)
59

```

```
60 subplot(111, projection='3d')
61 plot(x, y, z)
62 plot(x_th, y_th, z_th)
63
64 xlabel(ur"déviati  n vers le sud")
65
66 show()
```

