

```
1: #!/usr/bin/env python3
2:
3: import matplotlib.pyplot as plt
4: import numpy as np
5:
6: w0=2*np.pi
7: v0=0
8: dt=0.01
9: X=[5, 5]
10: for t in np.arange(0,2, dt):
11:     X.append(((1-(w0**2*dt**2)/4)/(1+(w0**2*dt**2)/4))*(2*X[-1]) - X[-2])
12:
13: plt.plot(np.arange(0,2,dt), X[2:])
14: plt.show()
```