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1.  import numpy as np
2.  import matplotlib.pyplot as plt
3.
4.  fig, axs = plt.subplots(2)
5.  # Tín hiệu sin rời rạc hóa
6.  n = np.arange(0,512,1)
7.  F = 300
8.  x = np.sin(2*np.pi*F*n/1500)
9.  axs[0].plot(n,x)
10.
11. # Phổ biên độ
12. X = [0]*512
13. for f in range(512):
14.     X[f] = 0
15.     for i in n:
16.         X[f] += x[i] * np.exp(-1j*2*np.pi*f*i/1500)
17.     X[f] = np.absolute(X[f])
18. axs[1].plot(n,X)
19. freq = np.arange(0,512,1)
20. Y = np.array([np.abs(np.sum(x *
    np.exp(-1j*2*np.pi*f*n/1500))) for f in freq])
21. axs[1].plot(n,Y)
22. plt.grid()
23. plt.show()
```