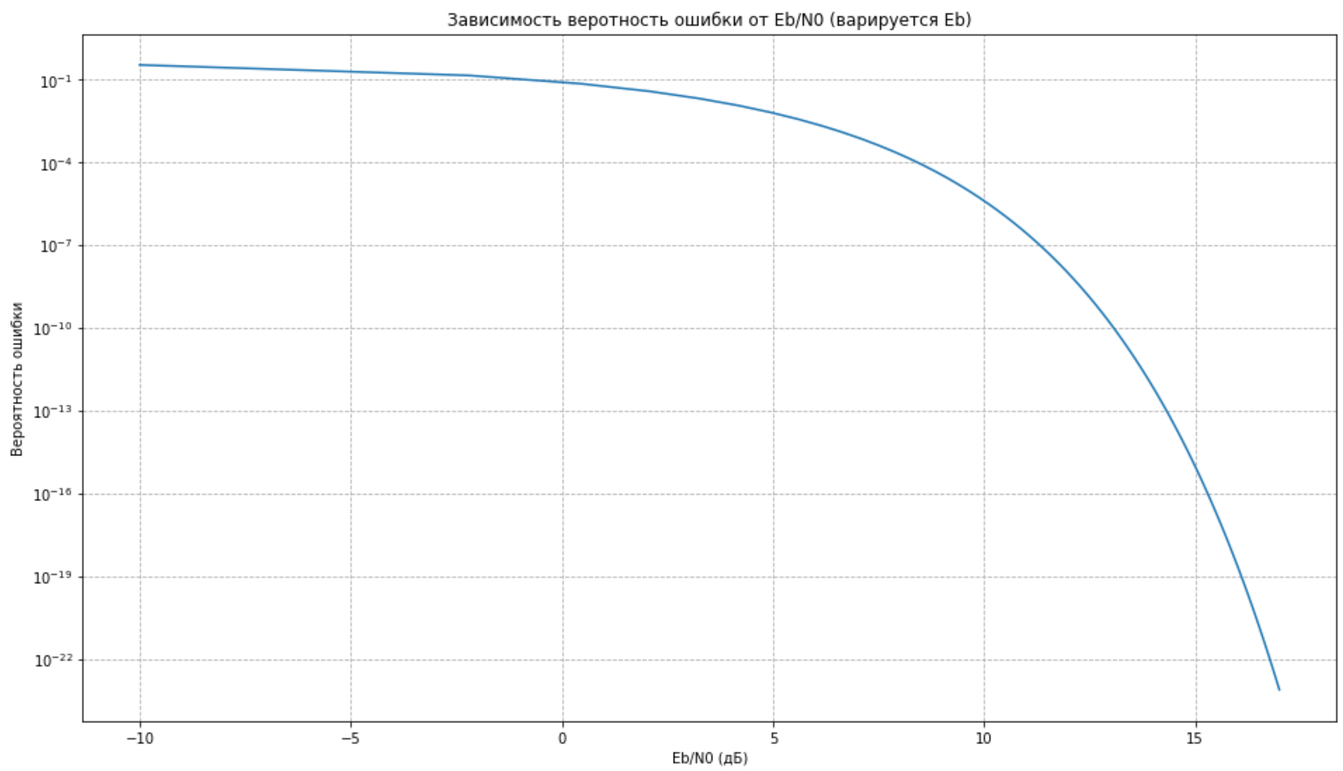
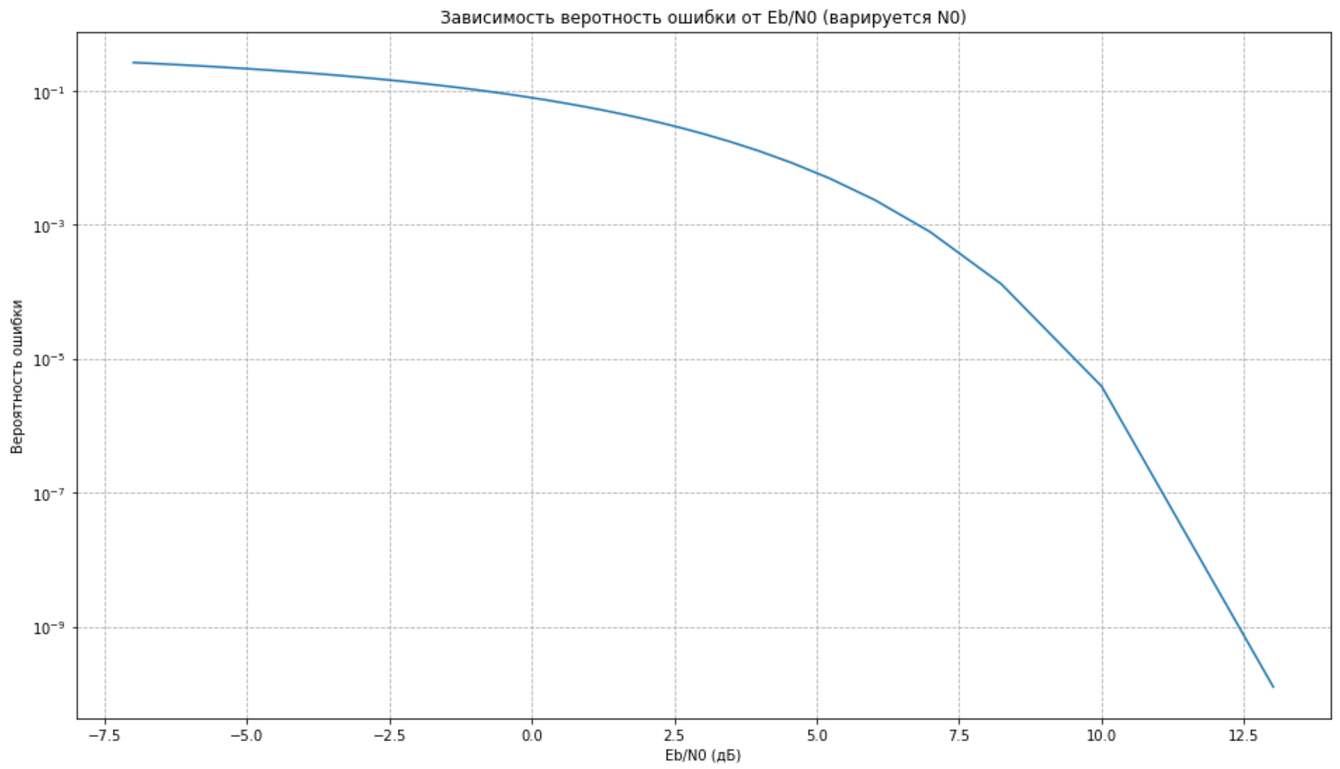
In [27]:
```
import matplotlib.pyplot as plt
import numpy as np
import scipy.stats as spst
import math
```

In [28]:
```
def get_error_prob(Eb, N0):
    return spst.norm.cdf(0, math.sqrt(Eb), math.sqrt(N0 / 2))

def get_snr(Eb, N0):
    return 10 * math.log10(Eb / N0)

def draw_plot(xx, yy, param_name):
    plt.figure(figsize=(16, 9))
    plt.semilogy(xx, yy)
    plt.title('Зависимость веротность ошибки от Eb/N0 (варируется ' + param_name + ')')
    plt.xlabel('Eb/N0 (дБ)')
    plt.ylabel('Вероятность ошибки')
    plt.grid(linestyle='--')
    plt.show()
```

In [29]:
```
Ebs = list(np.linspace(0.1, 50, 100))
xx_eb = list(map(lambda Eb: get_snr(Eb, 1), Ebs))
yy_eb = list(map(lambda Eb: get_error_prob(Eb, 1), Ebs))
draw_plot(xx_eb, yy_eb, 'Eb')
```



In [30]:
```
N0s = list(np.linspace(0.05, 5, 100))
N0s.reverse()
xx_n0 = list(map(lambda N0: get_snr(1, N0), N0s))
yy_n0 = list(map(lambda N0: get_error_prob(1, N0), N0s))
draw_plot(xx_n0, yy_n0, 'N0')
```



In [ ]:
```
```