In [1]:
```
import matplotlib.pyplot as plt
import numpy as np
```

In [2]:
```
def sc(ta, tc, ca, n):
    m = int(ta / (n * ca))
    k = int(tc / n)
    sc_ans = int(m * k * n)
    return sc_ans
```

In [3]:
```
print("The System capacity is ", sc(4200, 1001, 12, 7))
```

```
The System capacity is  50050
```

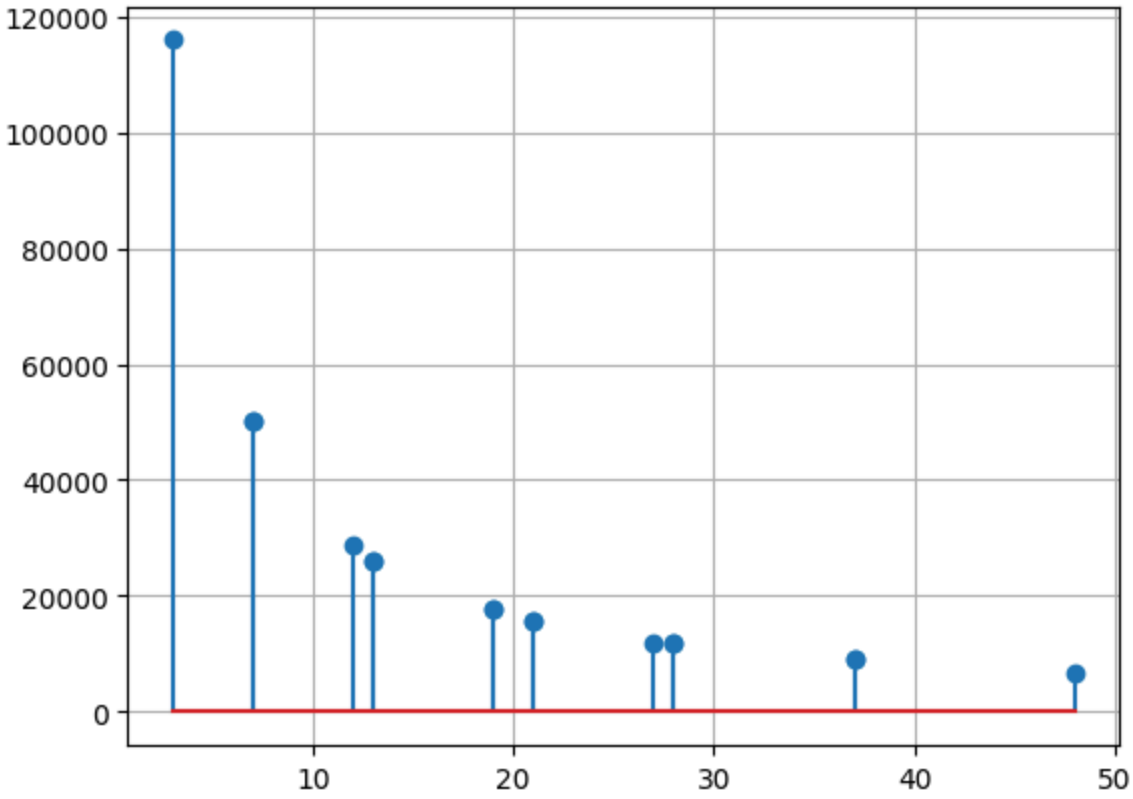
In [4]:
```
n1 = []
n2 = []

for i in range (1, 5):
    for j in range (1, 5):
        N = np.square(i) + np.square(j) + i * j
        n1.append(N)
        sc_a = sc(4200, 1001, 12, N)
        n2.append(sc_a)
```

In [5]:
```
print("Value of n1 = ", n1)
print("Value of n2 = ", n2)
```

```
Value of n1 =  [np.int64(3), np.int64(7), np.int64(13), np.int64(21), np.int6
4(7), np.int64(12), np.int64(19), np.int64(28), np.int64(13), np.int64(19), n
p.int64(27), np.int64(37), np.int64(21), np.int64(28), np.int64(37), np.int64
(48)]
Value of n2 =  [115884, 50050, 26026, 15792, 50050, 28884, 17784, 11760, 2602
6, 17784, 11988, 8991, 15792, 11760, 8991, 6720]
```

In [7]:
```
plt.grid()
plt.stem(n1, n2)
```

Out[7]: <StemContainer object of 3 artists>



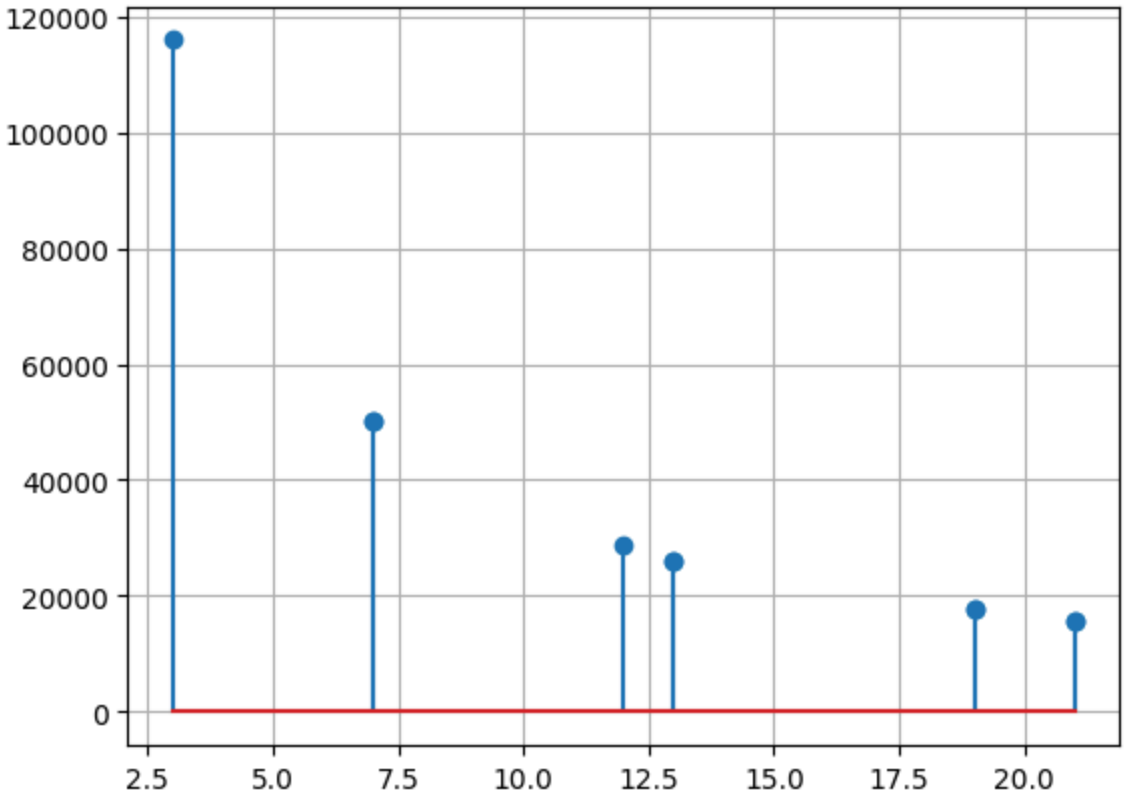
In [8]:
```
n1 = []
n2 = []
N_std = [3, 4, 7, 9, 12, 13, 19, 21, 22]

for i in range (1, 5):
    for j in range (1, 5):
        N = np.square(i) + np.square(j) + i * j
        if N in N_std:
            e = N
            n1.append(e)
            sc_a = sc(4200, 1001, 12, e)
            n2.append(sc_a)
```

In [9]:
```
print("Value of n1 = ", n1)
print("Value of n2 = ", n2)
```

```
Value of n1 =  [np.int64(3), np.int64(7), np.int64(13), np.int64(21), np.int6
4(7), np.int64(12), np.int64(19), np.int64(13), np.int64(19), np.int64(21)]
Value of n2 =  [115884, 50050, 26026, 15792, 50050, 28884, 17784, 26026, 1778
4, 15792]
```

In [10]:
```
plt.grid()
plt.stem(n1, n2)
```

Out[10]: <StemContainer object of 3 artists>


120000
100000
80000
60000
40000
20000
0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0