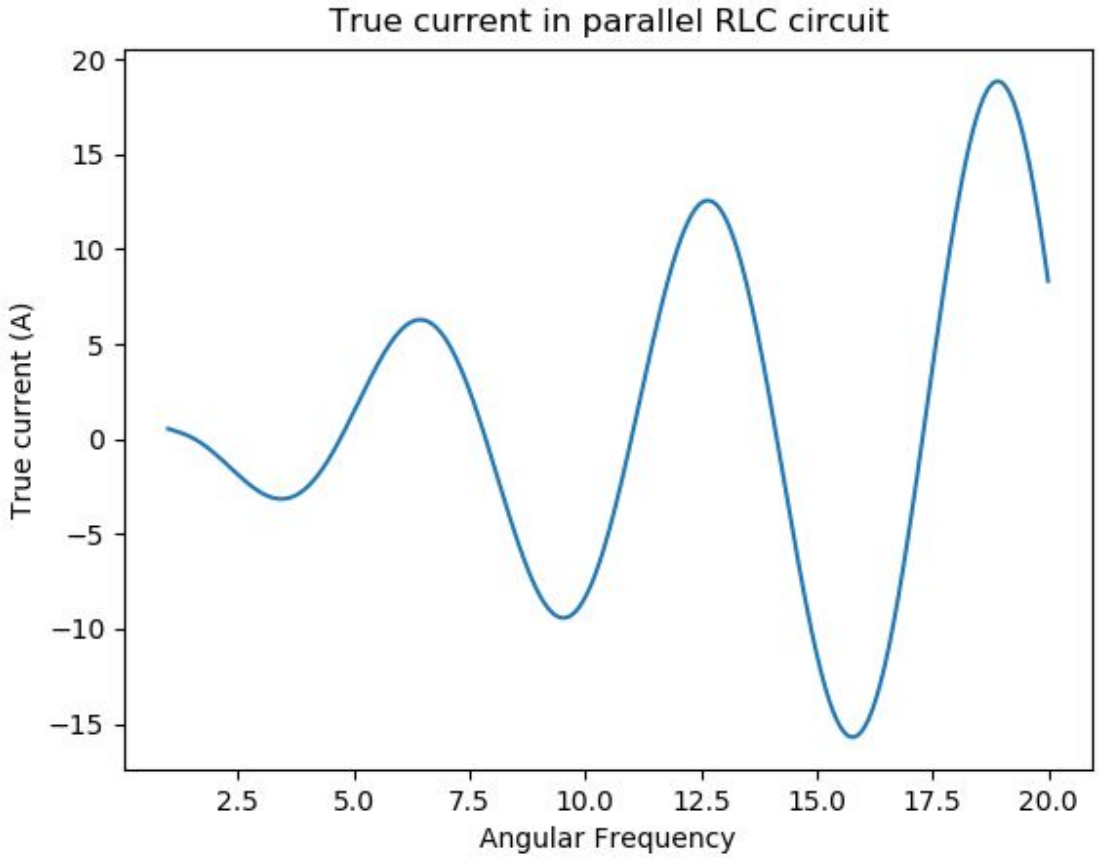
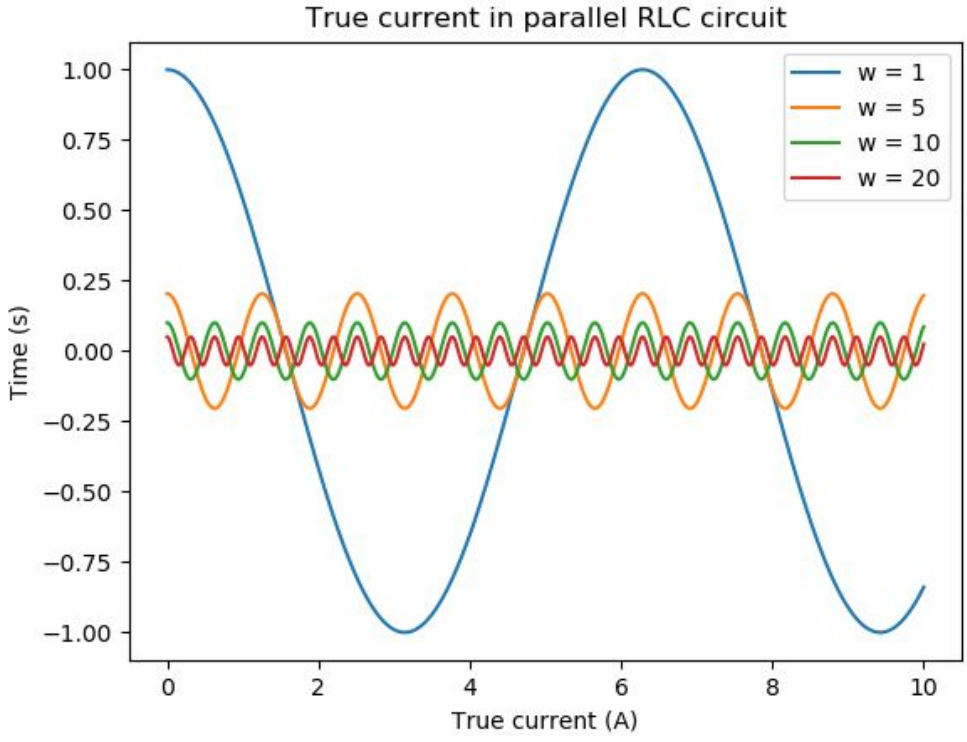

True current in parallel RLC circuit
True current (A)
Angular Frequency
20
15
10
5
0
−5
−10
−15
2.5
5.0
7.5
10.0
12.5
15.0
17.5
20.0


True current in parallel RLC circuit
Time (s)
True current (A)
w = 1
w = 5
w = 10
w = 20
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
2
4
6
8
10

```
import matplotlib.pyplot as plt
from math import *


w = [1, 5, 10, 20]

time = []
time5 = []
time10 =[]
time20= []
TrueCurrent = []
TrueCurrent5 = []
TrueCurrent10 = []
TrueCurrent20 = []


i = 0
t = 0.0
dt = 0.01
tf = 10.0
v_0 = 1.0
R = 1.0
L = 1.0
C = 1.0

'''

for i in w:

        while t < tf:
                true_current = ((v_0 * cos(i * t)) * sqrt((1.0/R)**2 + ((1.0/(i*L))-
i*C)**2))

                if i == 1:
                        TrueCurrent.append(true_current)
                        time.append(t)
                if i == 5:
                        TrueCurrent5.append(true_current)
                        time5.append(t)
                if i == 10:
                        TrueCurrent10.append(true_current)
                        time10.append(t)
                if i == 20:
                        TrueCurrent20.append(true_current)
                        time20.append(t)
                t = t+ dt
        t = 0.0

'''

#make new plot becuase I misread the problem
w = 0.10
w_final = 20.0
dw = 0.01
t = 1.0
frequency = []

      w < w_final:
        true_current = ((v_0 * cos(w * t)) * sqrt((1.0/R)**2 + ((1.0/(w*L))-w*C)**2))
        TrueCurrent.append(true_current)
        frequency.append(w)
        w = w + dw
```

```
plt.plot(frequency, TrueCurrent)
#plt.plot(time5, TrueCurrent5, label='w = 5')
#plt.plot(time10, TrueCurrent10, label='w = 10')
#plt.plot(time20, TrueCurrent20, label='w = 20')
plt.ylabel('True current (A)')
#plt.xlabel('Time (s)')
plt.xlabel('Angular Frequency')
plt.title('True current in parallel RLC circuit')
plt.legend()
plt.show()
```