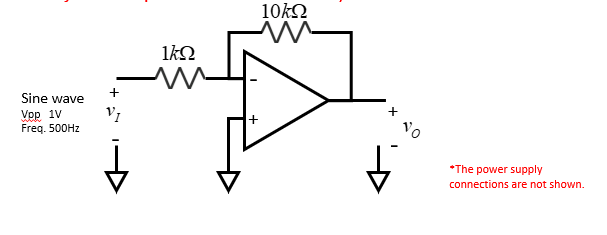
**REPORT**

|  |
| --- |
| **Experiment 1: Non-inverting Amp. vs Inverting Amp.** |

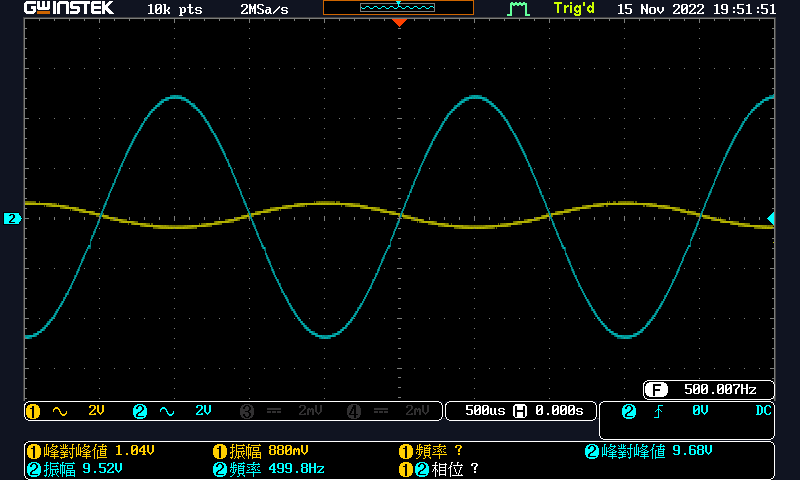


1-1

vin and vout waveform in the same graph with proper scale and measurement, including Vpp and maximum and minimum.

(1pic)

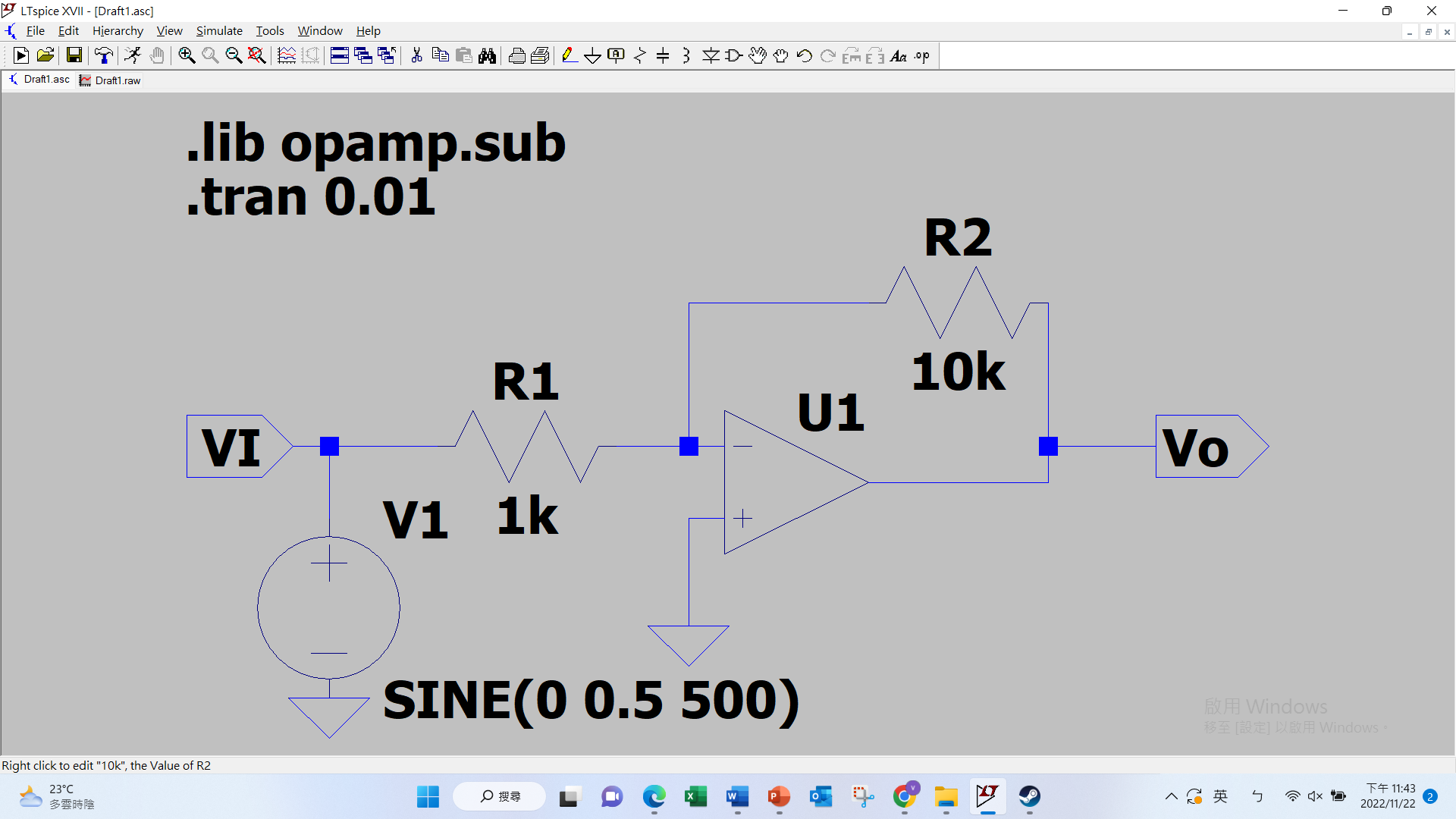
|  |  |  |  |
| --- | --- | --- | --- |
| vin,pp (V) | vout,pp (V) | Measured voltage gain; Av (V/V) | Theoretical voltage gain; Av (V/V) |
| **1.04** | **-9.68** | **-9.3** | **-10** |

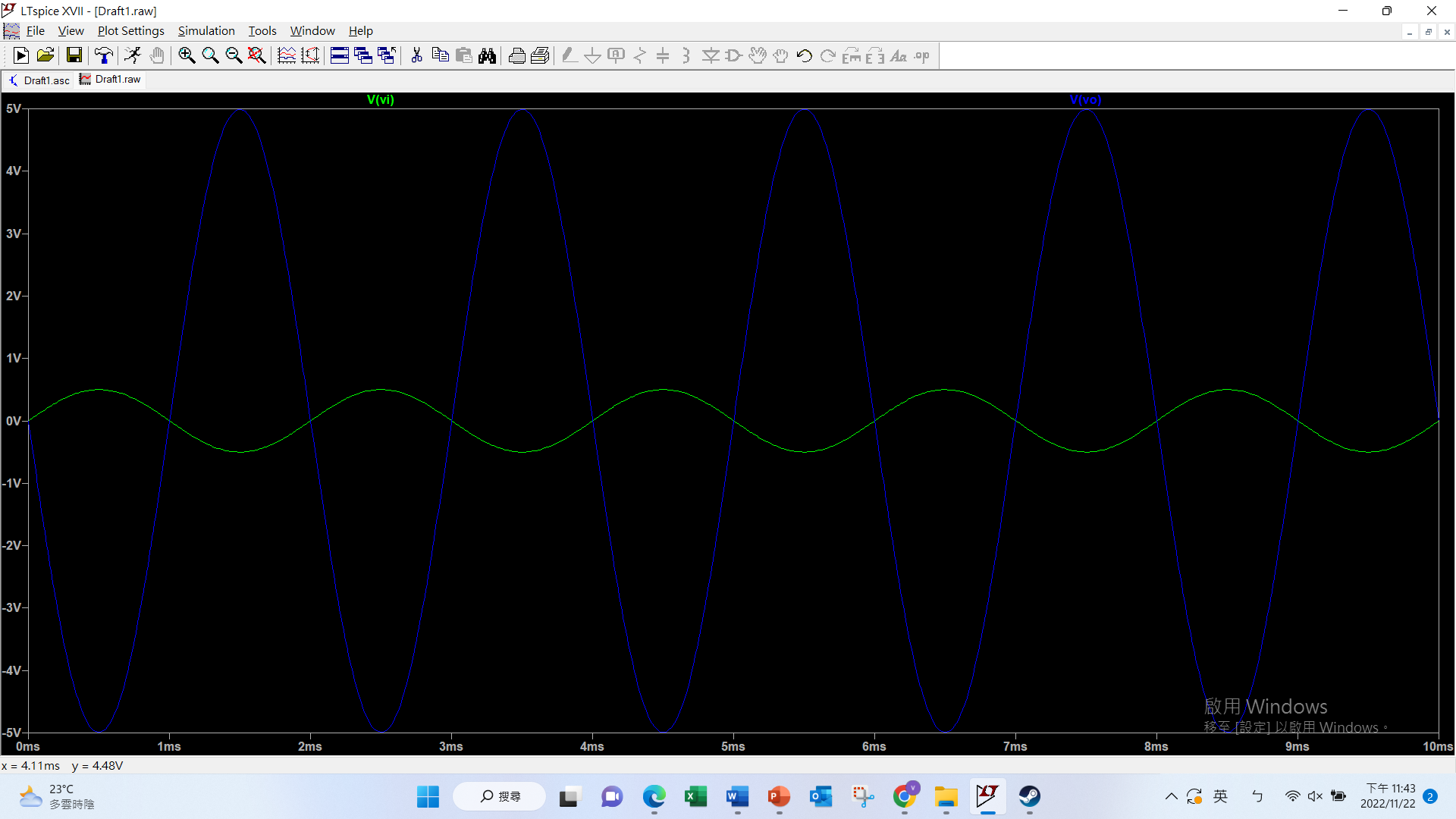


Question:

Please attach your LTSPICE simulation result. (Both schematic and waveform)

(2pic)

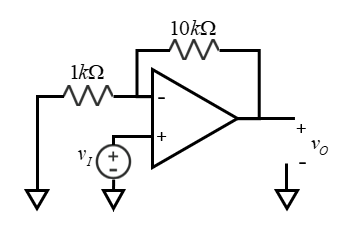




Comparison:

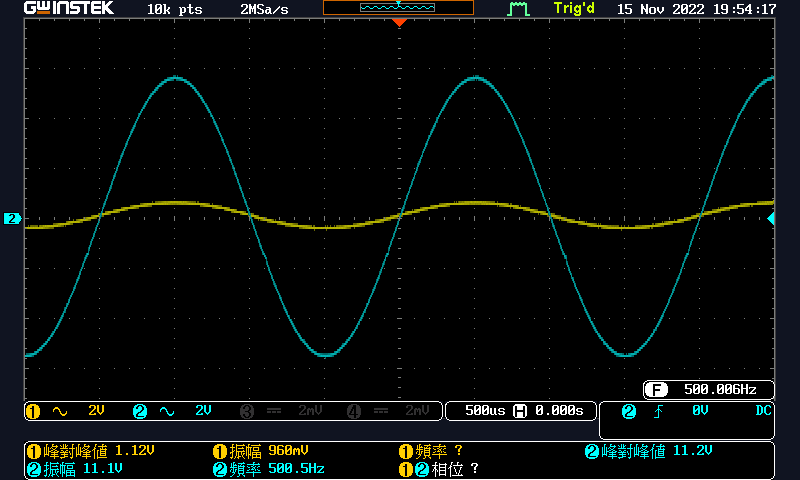
A=Vout,vpp/ Vin,vpp

1-2



vin and vout waveform in the same graph with proper scale and measurement, including Vpp and maximum and minimum.

(1pic)



|  |  |  |  |
| --- | --- | --- | --- |
| vin,pp (V) | vout,pp (V) | Measured voltage gain; Av (V/V) | Theoretical voltage gain; Av (V/V) |
| **1.12** | **11.2** | **10** | **10** |

Question:

Please attach your LTSPICE simulation result. (Both schematic and waveform)

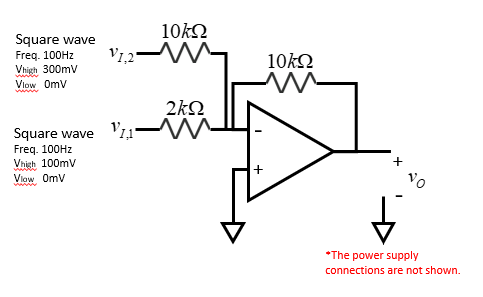
(2pic)

Comparison:

A=Vout,vpp/ Vin,vpp

|  |
| --- |
| **Experiment 2: Weighted Adder** |

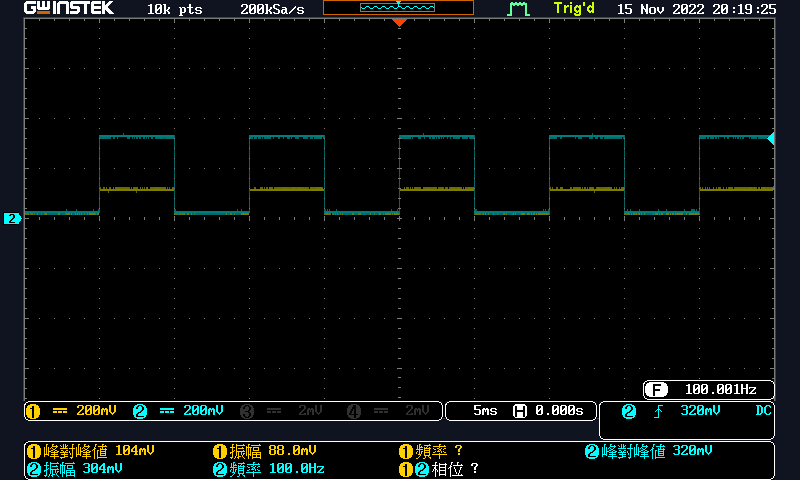
Please use appropiate measurment and show result in proper scale



|  |  |  |  |
| --- | --- | --- | --- |
| vin1,pp (V) | vin2,pp (V) | Measured vout,pp (V) | Theoretical vout,pp (V) |
| **104** | **320** | **860** | **800** |

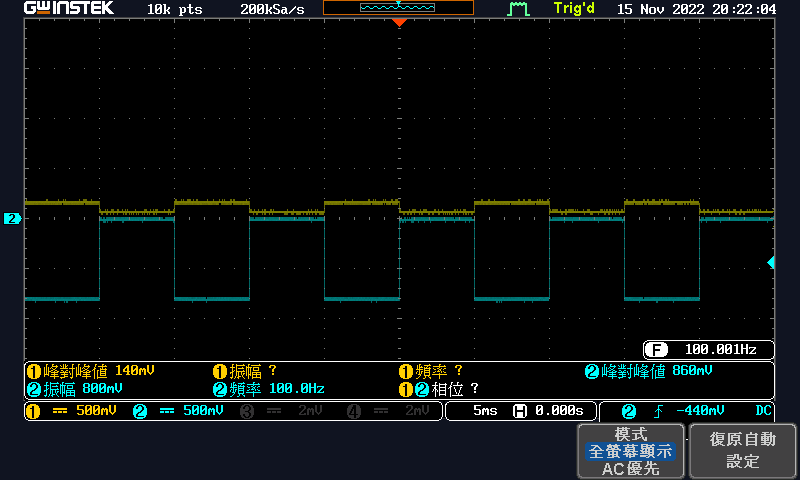
in1 & in2 waveform

(1pic)



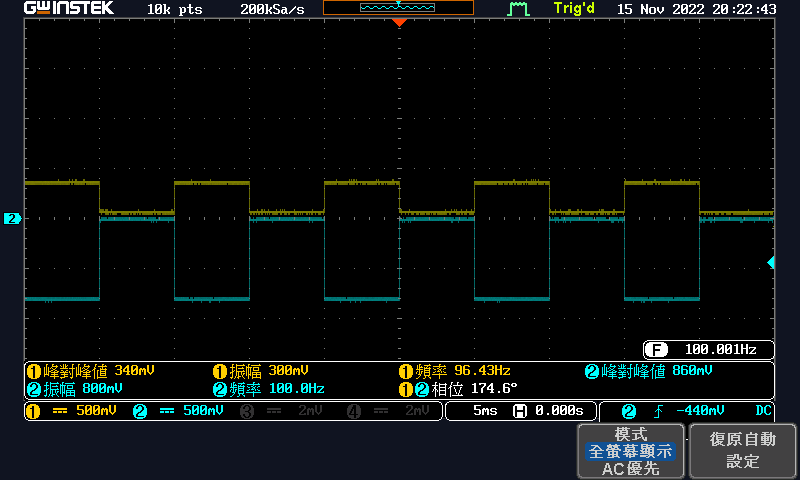
in1 & out waveform

(1pic)



in2 & out waveform

(1pic)



Question:

Please derive the equation for vout. Use symbol (vin1, vin2, R1, R2, R3, etc.) to represent.

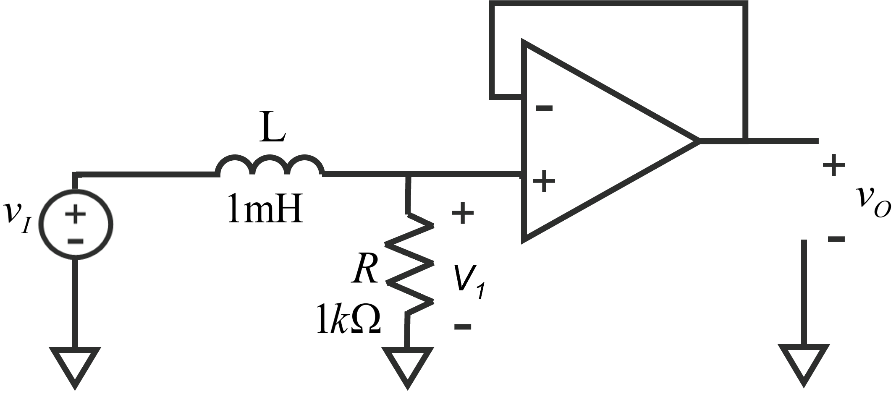
Please attach your LTSPICE simulation result. (Both schematic and waveform)

(2pic)

Discuss:

|  |
| --- |
| **Experiment 3: Active filter** |

Please use appropiate measurment and show result in proper scale.



1kΩ

|  |  |
| --- | --- |
|  |  |
|  |  |

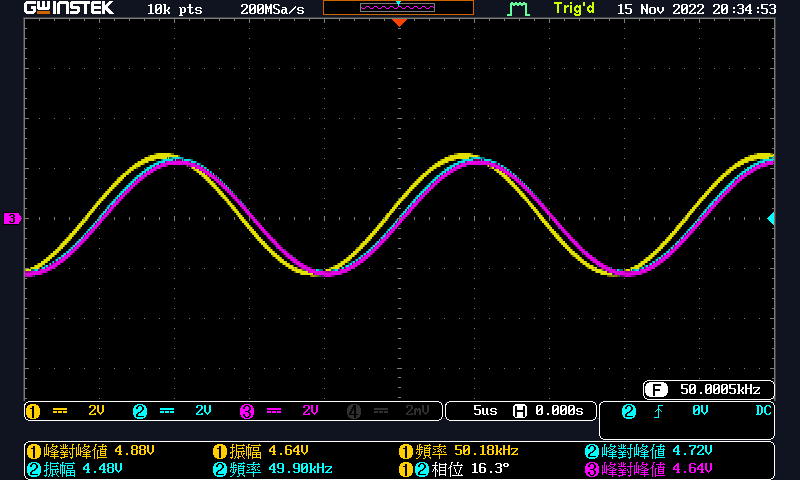
1.

|  |  |  |
| --- | --- | --- |
| Frequency (Hz) | 50kHz | 300kHz |
| V,I,pp(V) | 4.88 | 4.72 |
| Vo,pp(V) | 4.64 | 2 |
| V1,pp(V) | 4.72 | 2.8 |

2.

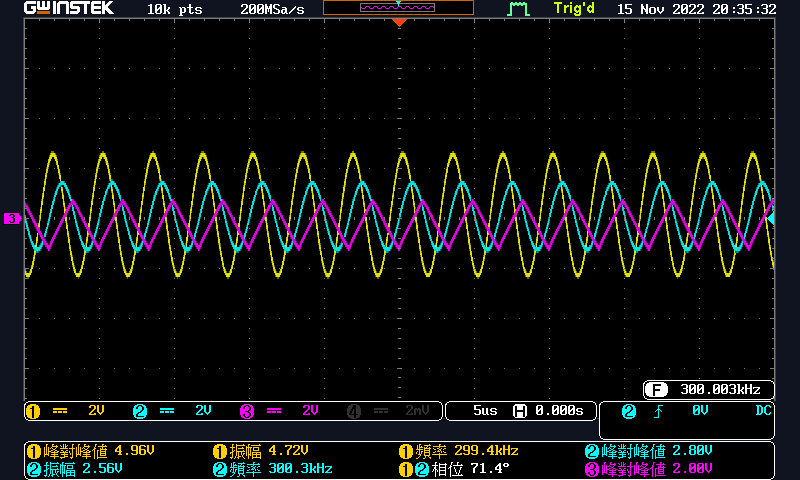
50k Hz Vin , V1, and Vout waveform

(1pic)

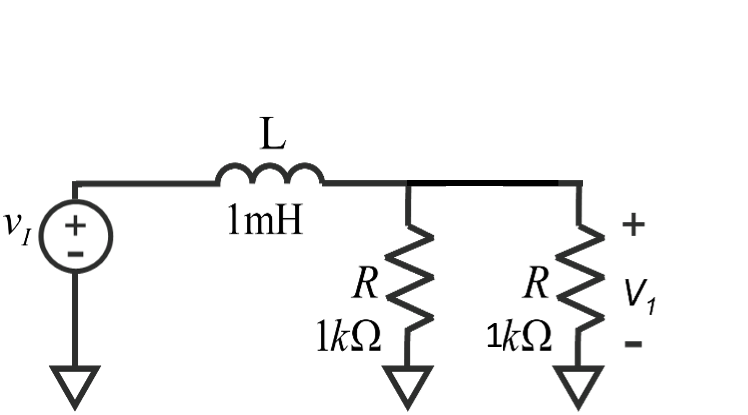


300k Hz Vin , V1, and Vout waveform

(1pic)

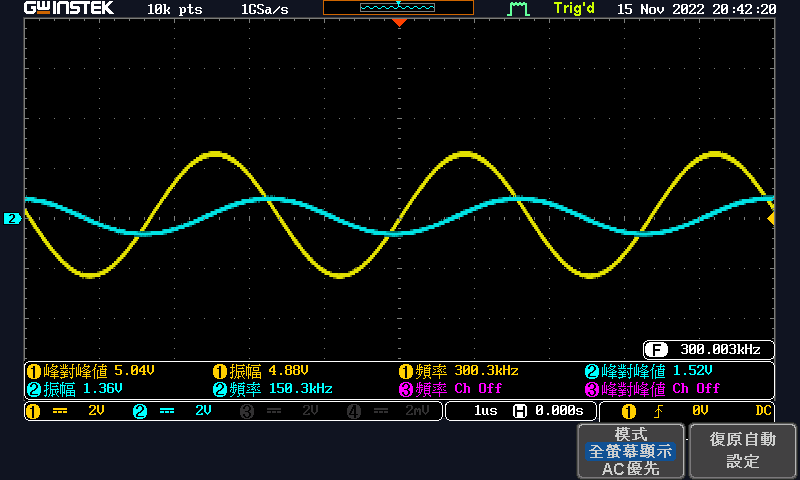


3.

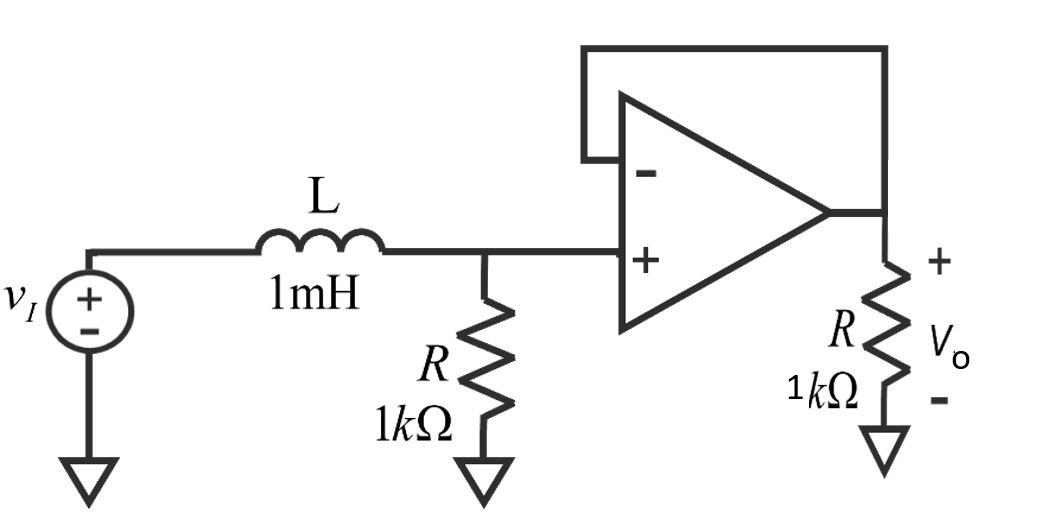


300k Hz Vin and V1 waveform, turn off OP.

(1pic)

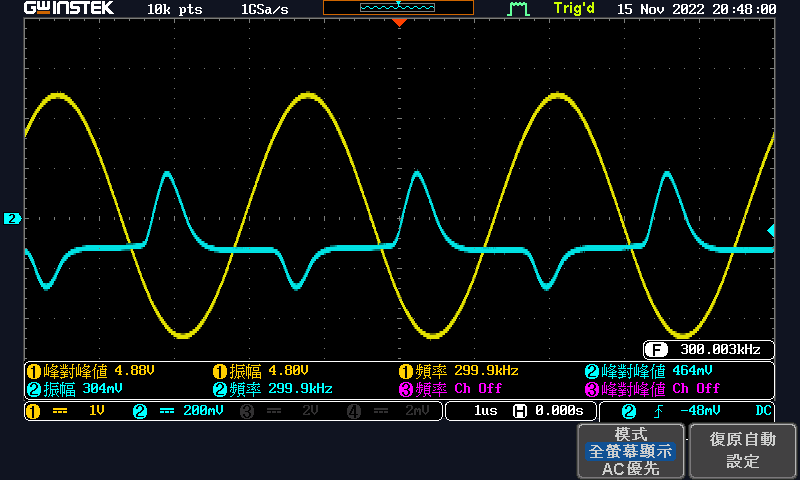


4.



300k Hz Vin and Vo waveform

(1pic)



Question:

Please attach your LTSPICE simulation result. (Both schematic and waveform)

(2pic)

Discuss: