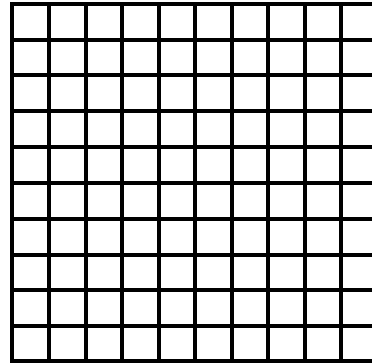
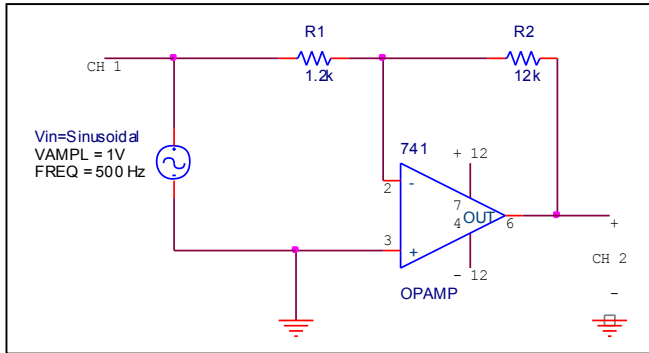


ECE 232
Lab1
Inverting Amplifier, Integrator, Differentiator

Experimental Work:

1. Set up the inverting amplifier circuit shown below using op-amp (LM741) and sketch the input (connected to CH1 of the oscilloscope) and output (connected to CH2 of the oscilloscope) waveforms.



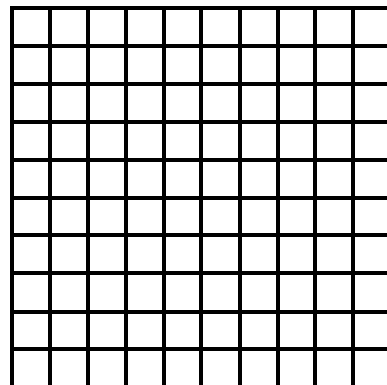
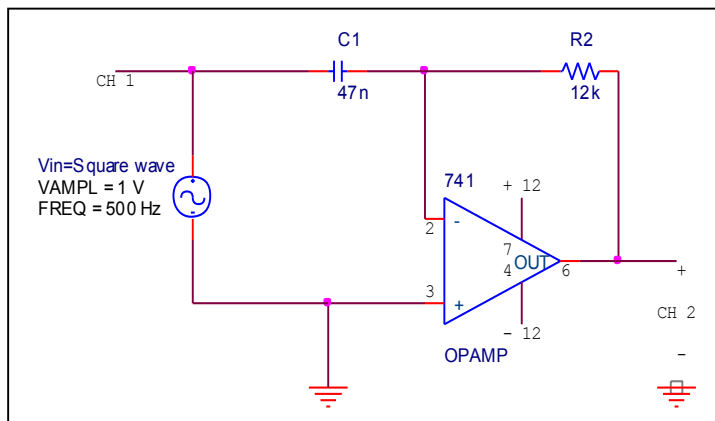
Settings of CH1 and CH2

CH1 Volt/div: 1 Volt/div

CH2 Volt/div: 5 Volt/div

Sec/div: 1 msec

2.a. Set up the circuit below. Give a square input having 1 Volt peak value (2 Volt peak-to-peak value) and 500 Hz frequency. Sketch the input and the output waveforms. In what way are input and output waveforms related. (This is a differentiating circuit.)



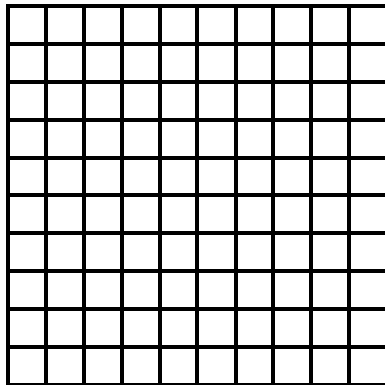
Settings of CH1 and CH2

CH1 Volt/div: 1 Volt/div

CH2 Volt/div: 5 Volt/div

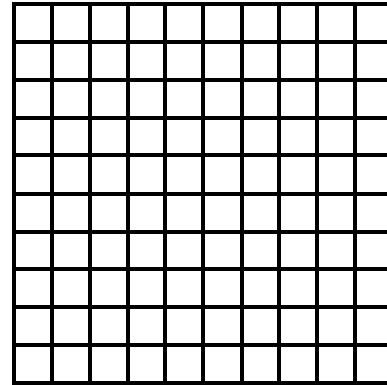
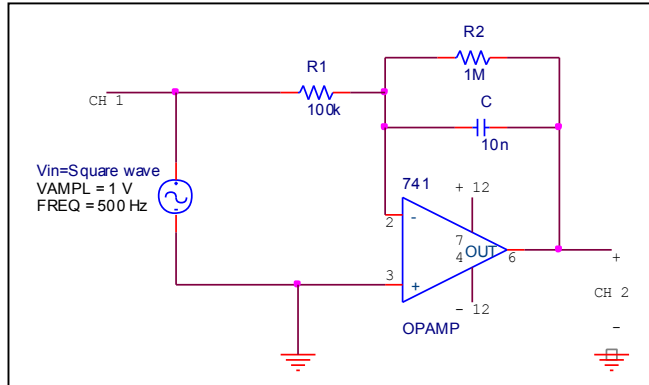
Sec/div: 250 μ sec

2.b. Instead of square wave if triangular wave is given to the circuit, what will happen? Plot the input and output waveforms.



Settings of CH1 and CH2
CH1 Volt/div: 1 Volt/div
CH2 Volt/div: 1 Volt/div
Sec/div: 500 μ sec

3. In the following circuit the input is a square wave of 2 Volt peak-to-peak value with 0V DC offset and $f=500$ Hz frequency. Sketch the input and output waveforms. Comment on the input and output waveforms. In what way they are related. (This is an integrating circuit).



Settings of CH1 and CH2
CH1 Volt/div: 1 Volt/div
CH2 Volt/div: 1 Volt/div
Sec/div: 1 msec

Equipment list:

- Resistors: 1.2k Ω , 12k Ω , 100k Ω , 1M Ω
- Capacitors: 47nF, 10nF