

ECE 109L - TIME-VARYING INPUTS - LAB 26

RESISTOR CIRCUITS WITH SINUSOIDAL INPUTS

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OBJECTIVE

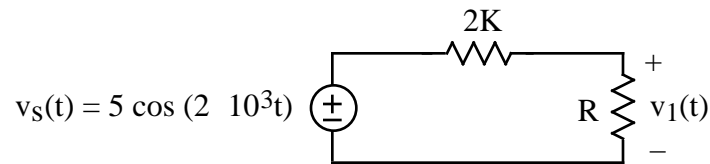
The objective of this Lab is to make use of the oscilloscope to display the voltages in circuits with sinusoidal sources

PRELAB

Read the notes in the lab manual on the operation of scopes. Then explain in your own words what triggering is and why it's needed

LAB

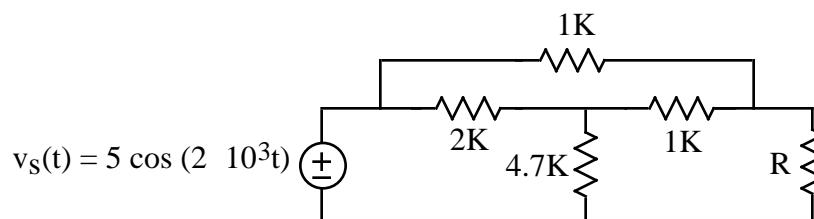
1. Given the following circuit



PARTNER 1: $R = 1K$ PARTNER 2: $R = 4.7K$

- Measure your resistors. Compare with nominal values
- Make use of what you see on the scope to sketch graphs of $v_s(t)$ and $v_1(t)$
- Then make use of what you see on the scope to write an equation for $v_1(t)$
- PreLab** - Calculate $v_1(t)$
- Compare the measured and calculated amplitude and frequency of $v_1(t)$
- Describe how increasing the amplitude of $v_s(t)$ affects the amplitude and frequency $v_1(t)$
- Describe how increasing the frequency of $v_s(t)$ affects the amplitude and frequency of $v_1(t)$

2. Given the following circuit



PARTNER 1: $R = 1K$ PARTNER 2: $R = 4.7K$

Make use of what you see on the scope to obtain equations for each of the node voltages