

ECE 109L - TIME-VARYING INPUTS - LAB 27

SUPERPOSITION WITH SINUSOIDAL INPUTS

FALL 2006

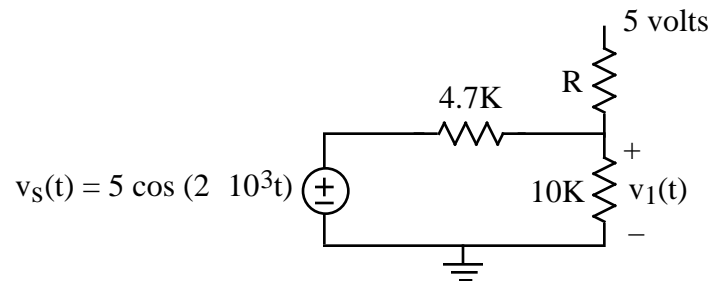
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OBJECTIVE

The objective of this lab is to make use of the oscilloscope to demonstrate that resistors circuits with sinusoidal inputs can be analyzed with superposition

LAB

1. Given the following circuit



PARTNER 1: $R = 3.3\text{K}$ PARTNER 2: $R = 2\text{K}$

- a. Measure the values of your resistor. Compare with nominal values
 - b. Make use of what you see on the scope to make a sketch of $v_1(t)$. Then write an equation for $v_1(t)$
 - c. Now make use of what you see on the scope to find $v_1(t)$ when the 5 volt source is replaced by a short and then when the sinusoidal source is replaced by a short. Be sure to draw graphs to illustrate what's going on
 - d. Make use of your results in parts (b) and (c) to see if superposition is obeyed in this circuit
2. Repeat Problem (1) for a circuit that you make up