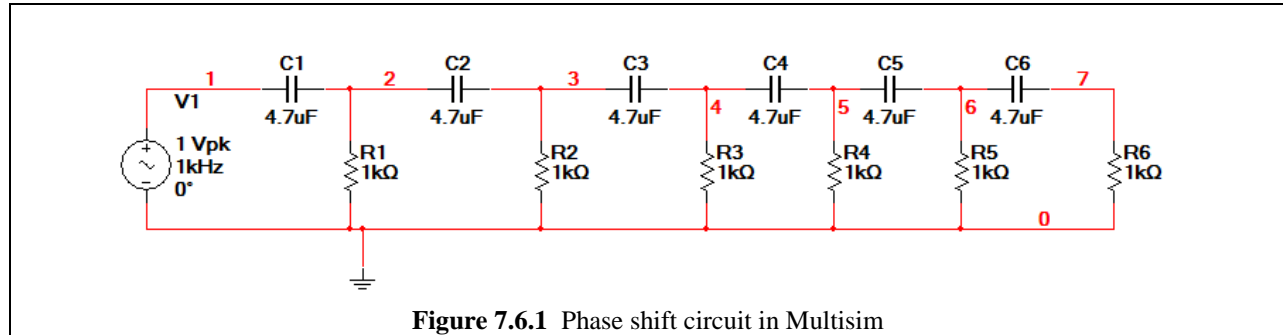
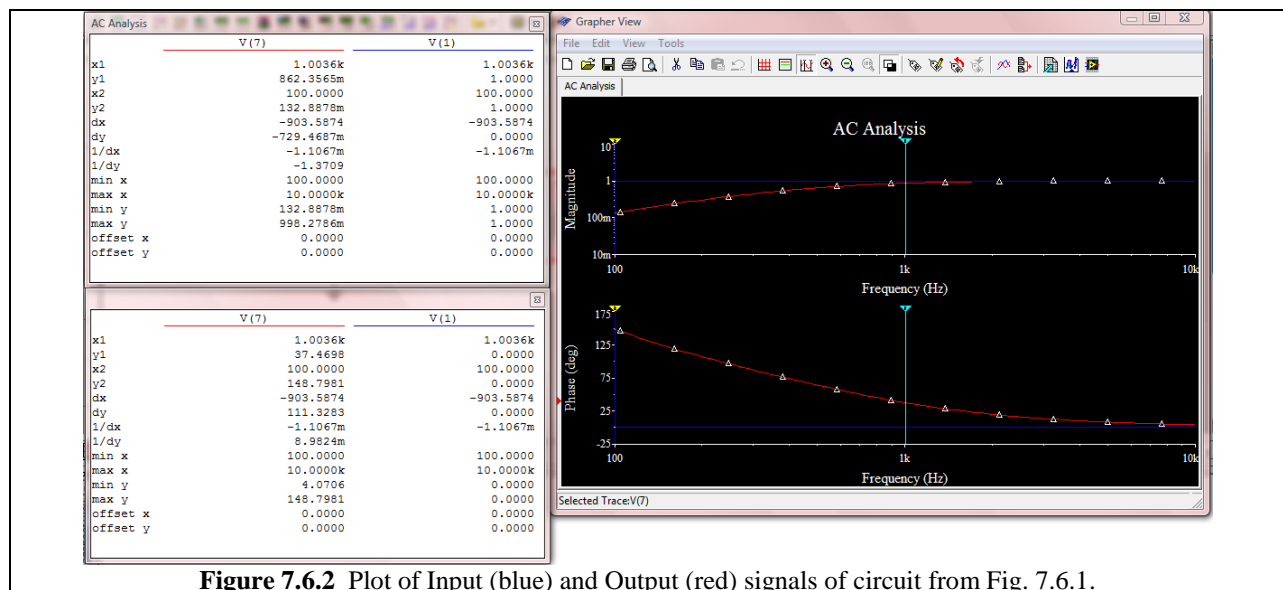


MULTISIM DEMO 7.6: PHASE SHIFT CIRCUITS IN MULTISIM

Phase shift circuits can take a long time to analyze, but you can pretty easily simulate and double-check your work using Multisim. Let's analyze the following phase shift circuit shown in Fig. 7.6.1 below.



All we need to do to analyze this circuit is run an AC Analysis. Let's run one from 1 kHz to 100 kHz. Make sure you make the number of points per decade in the simulation pretty high. (At least 50.) First, let's just simulate the output signal V(7) in comparison to the input signal V(1).



As we can see in Fig. 7.6.2 above, at 1 kHz, the input has a peak voltage of 1.0 V and a phase of 0° and the output has an amplitude of 862.4 mV and a phase of 37.47° . The reason V(1) has a phase of 0° is because the source V1 is defined as having a phase of 0° . As a result, Multisim bases the phase of every other node off of that defined phase.

What if we wanted to plot the ratios of the voltage at each stage of the phase shift circuit to the input voltage? This can be done by adjusting the Selected variables for analysis to the ratios shown in Fig. 7.6.3 on the next page. When this is simulated, the result is the plot shown in

Fig. 7.6.4. Using the cursors, we can see what the phase shift and attenuation at any point in the circuit is at any frequency. This is a very versatile plot to have at our disposal.

Phase Shift Circuits can also be analyzed by using Measurement probes and referencing the phase to appropriate node when necessary. This is covered in the text book in enough detail, however, so it shall not be covered here.

