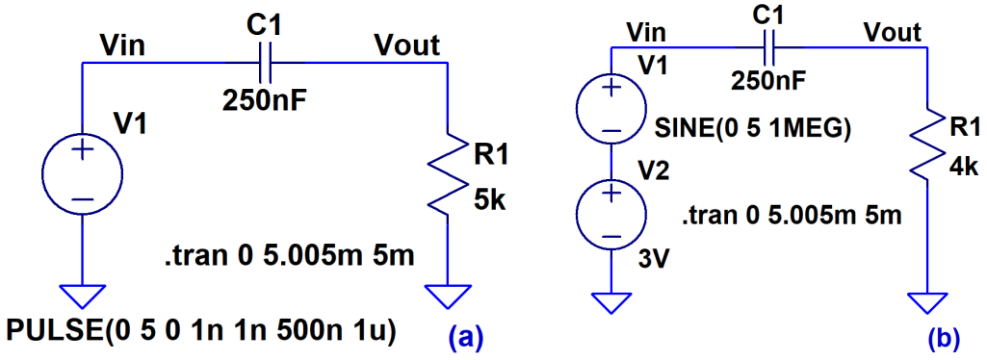
H.W. #22 EE 220 Fall 2023

Show your work for credit!

1. In steady-state conditions what is Vout? When the input signal first starts, what is Vout? Why? Verify your answers with four LTspice simulations (one for each case, that is, when the simulation starts saving data at 0 and at 5 ms [around 5 time constants] and after the circuit reaches steady-state). Note, that no calculations are needed except for calculating the time constant and comparing it to the input period. These circuits **are practically important** and demonstrate AC coupling (as in an oscilloscope) an input signal. (4 points)



2. Determine Vout for each of the following circuits. Sketch Vout and Vin on the same plot. Show your hand calculations for credit. Verify your answers using LTspice. (8 points)