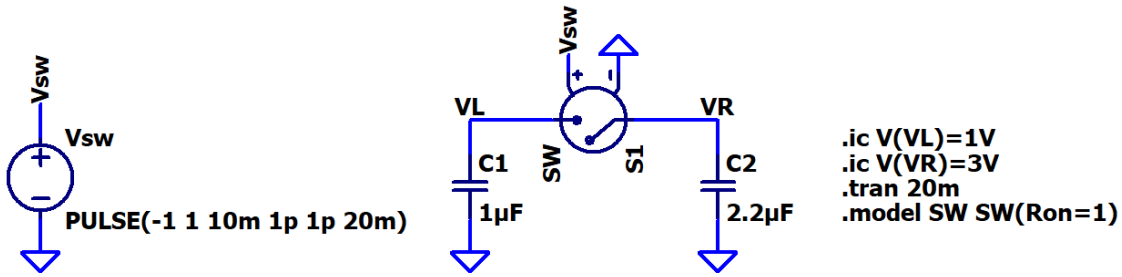
HW11 – Due Monday, March 28
EE220 – Circuits I
Spring 2022

To get full credit:

- Show your work.
- Put a box around each of your answers.
- Make sure to **follow all instructions.**

1. The given circuit demonstrates the concept of charge sharing. The switch S1 is initially open at time t = 0 and closes permanently at time t = 10ms. Given the initial conditions, determine the amount of charge stored on C1 and C2 before the switch closes. (2 points)



2. After the switch closes and charge sharing has occurred, there are no longer two separate nodes (VL and VR), but rather, both capacitors are now connected in parallel to a single node (say, VF). How much charge is stored on the equivalent parallel capacitance? What is the voltage across the parallel capacitance? Use a transient simulation in LTspice to verify that your final voltage calculation is correct. (6 points)

3. Using values calculated in problem 1 and problem 2, determine the amount of energy (in Joules) stored in C1 and C2 before the switch closes. Then, determine the amount of energy stored in the equivalent parallel capacitance after the switch closes. Does *the total amount of energy stored before the switch is closed* **equal** *the total amount of energy stored after the switch is closed?* (4 points)