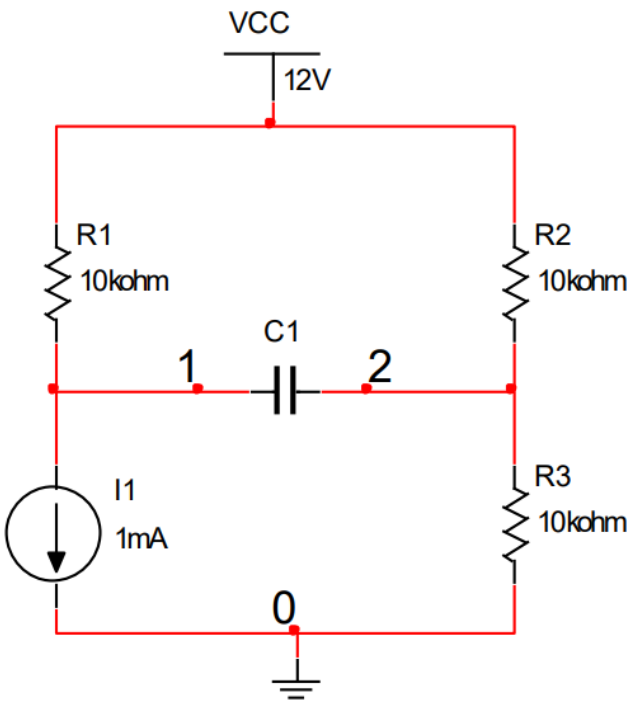
Lecture 1, Intro and Thevenin, Homework
E153 F17 - Spencer



(a) Find the effective resistance seen by the capacitor. (i.e.: the Thevenin resistance across the port between terminals 1 and 2). Call it R12.

(b) Determine the Thévenin equivalent (i.e.: open circuit) voltage seen from a port between node 1 and ground. Call it Voc-1,0.

(c) Determine the Thévenin equivalent (i.e.: open circuit) voltage seen from a port between node 2 and ground. Call it Voc-2,0.

(d) What is the current between terminals 1 and 2? Be sure to explain why.

(e) If C1 is changed to a resistor of 5kΩ, determine the current between terminals 1 and 2 and its direction. Hint: you already know R12, what other quantity would make this easy to calculate?

(f) If I1 is changed to a dependent current source with a current of 1mS*v2, what is the effective resistance seen by the capacitor?