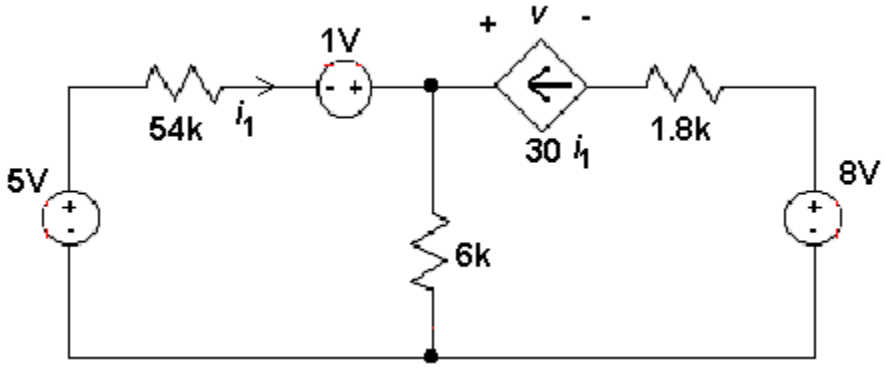
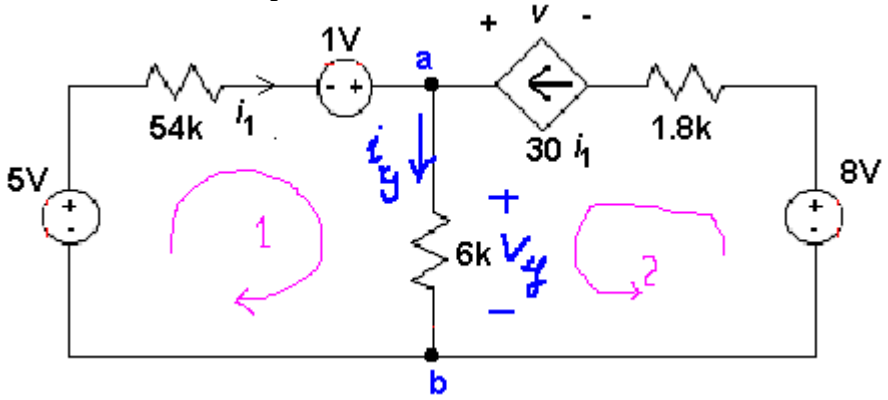
Class Note 3: Example Problem with Dependent Source

Problem 1:
Find v and i_1 from the circuit given below



SOLUTION:
Strategy: KCL at the center node for current calculation, and KVL for the voltage.

(a) node and current marks and loops

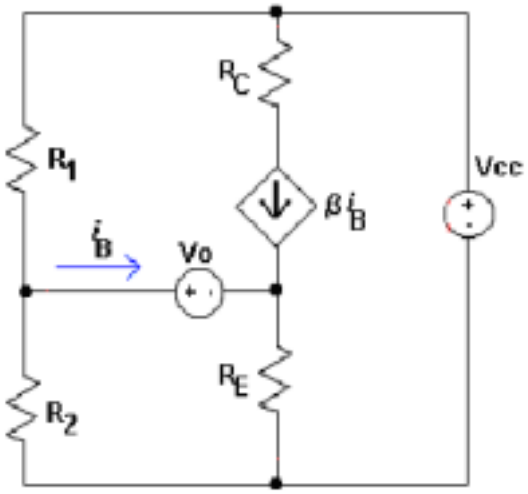


(b) Equations:

Problem 2:

In a given circuit below, all the resistances and sources are known: V_{cc}=15[V], V_o=200[mV], R_1=20K, R_2=80K, R_E=100, and R_C=500. β=39.

Find equation for i_B and I_{cc}.



SOLUTION

Procedure:

1. The fist thing we do is to mark nodes (a, b, c, and d) and flow indication of the currents (i_1, i_2, i_B, i_E, i_C, and i_{CC})