THIRD MIDTERM

Name (Print) Luo, Mengzhi Name (Signed) Av. 24.1

Discussion Instructor (Circle One): Bertolina Hari Jaw Krantz
Discussion Section #: Lakner McDonald Pollard

SHOW ALL WORK!!!! REPORT ALL NUMBERS TO THREE SIGNIFICANT FIGURES!!!
Use the conversion constants and data given on the front page.

(a) For the circuit given, circle and number all of the junctions. How many independent junction equations can be written?
(b) How many loop equations are needed in addition to the junction equations to completely solve for the unknown currents?
(c) Write down the junction equation for the junction labeled A. Use the current labels and directions given.
(d) Write down the loop equations for the interior loops labeled (1) and (2). Start each at A and go clockwise. Signs are important. Use the current labels and directions given.

+5 (a) 4 independent junction equations

+5 (b) 4 loop equations are needed

+5 (c) \[ I_5 + I_3 - I_8 - I_6 = 0 \]

+5 (d) \[ I_5 R_5 - I_1 R_1 + \varepsilon_1 - I_1 R_2 - I_3 R_3 = 0 \]

+5 \[ I_3 R_3 + I_4 R_4 - \varepsilon_2 + I_6 R_6 = 0 \]