Instructions: This assignment is worth 15 extra points added to Midterm 1. The figure below is an electrical circuit diagram. Attached is the section on electrical circuits from *Introductory Linear Algebra: An Applied First Course*. Use Kirchoff’s Circuit Laws to set up a system of equations for the currents $I_1, \ldots, I_8$ in each wire. Then use Gaussian Elimination to solve the system. Make sure to write down each row operation used.

### Nodes

a. $I_a = I_1 + I_7$

b. $I_1 + I_2 = I_3$

c. $I_5 = I_1 + I_4 + I_6$

d. $I_3 + I_8 = I_5$

e. $I_6 + I_7 = I_3$

### Junctions

i. $3 - 2I_1 + 4I_2 - 2 = 0$

ii. $4I_2 - 3I_3 + 5 = 0$

iii. $2I_6 - 5 = 0$

iv. $2 - 2I_6 + 5I_7 = 0$