

Multi-loop Circuits Solving Tactics

1. Label the polarity of each EMF device. (Note that the EMF of one device may force another to run “backward.”)

2. Indicate a current direction in each branch. (Guess if necessary. If guess is in wrong direction, answer will be negative.)

3. Label each resistor with $+ / -$ corresponding to the potential at each end. (Note that current flows from $+$ to $-$ potential.)

4. Choose a direction to traverse each individual loop. (Choice is arbitrary, but every branch must be traversed at least once.)

5. Traverse each loop and apply the LOOP RULE. (Recall sign conventions for EMF's and resistors.)

6. Apply the JUNCTION RULE at each independent junction. (Recall sign convention for currents.)