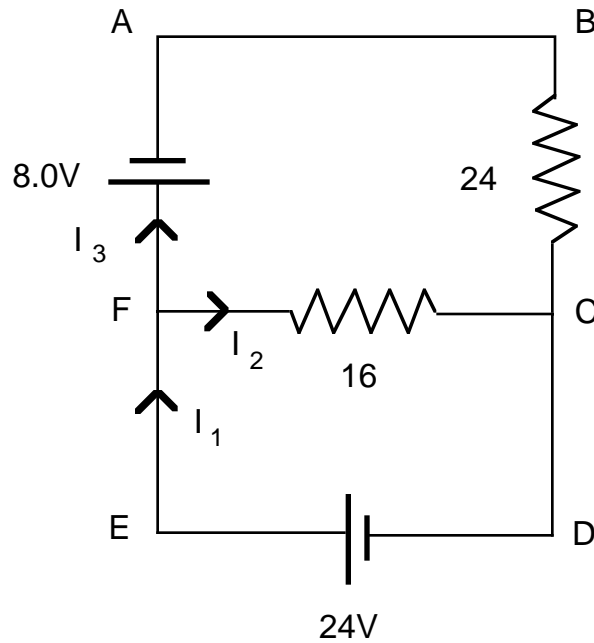


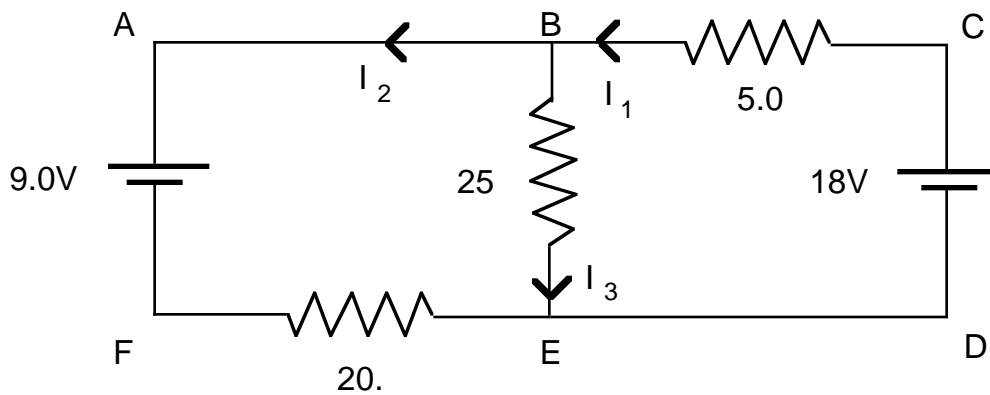
Kirchoff's Rules : W.S.-15

For the circuits below, find three equations for the three unknown currents and solve for each of the currents; I_1 , I_2 , and I_3 .

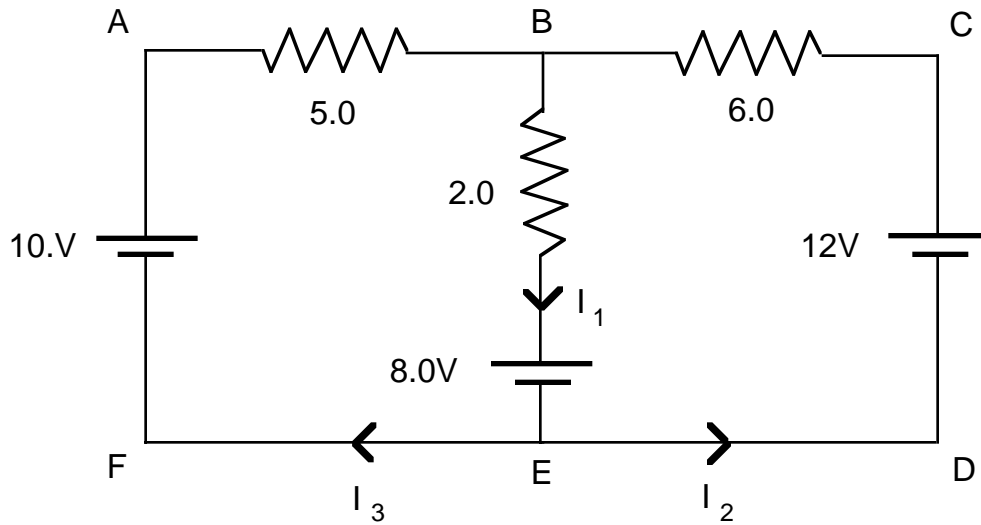
1)



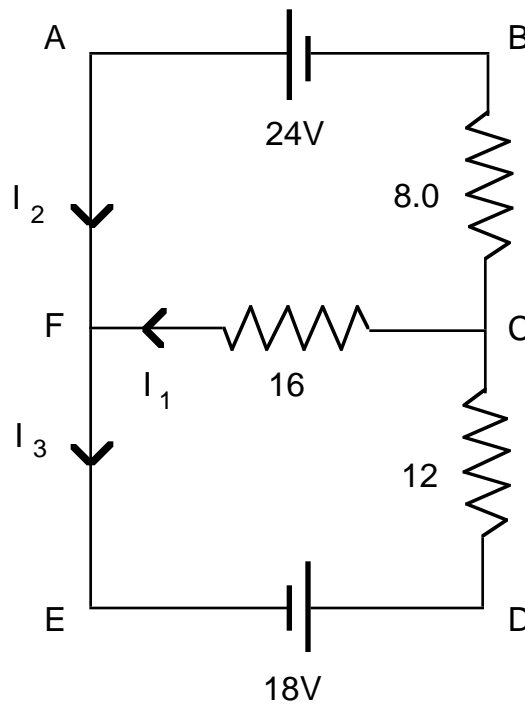
2)



3)



4)



Answers: 1) $I_1 = I_2 + I_3$, $24V = 16(I_2)$, $24V - 8.0V = 24(I_3)$, $I_1 = 2.2A$, $I_2 = 1.5A$, $I_3 = 0.67A$, 2) $I_1 = I_2 + I_3$, $18V = 5.0(I_1) + 25(I_3)$, $9.0V = -20.(I_2) + 25(I_3)$, $I_1 = 0.81A$, $I_2 = 0.25A$, $I_3 = 0.56A$, 3) $I_1 = I_2 + I_3$, $10.V - 8.0V = 5.0(I_3) + 2.0(I_1)$, $12V - 8.0V = 2.0(I_1) + 6.0(I_2)$, $I_1 = 0.62A$, $I_2 = 0.46A$, $I_3 = 0.15A$, 4) $I_3 = I_1 + I_2$, $24V + 18V = 8.0(I_2) + 12(I_3)$, $18V = 16(I_1) + 12(I_3)$, $I_1 = -0.35A$, $I_2 = 2.31A$, $I_3 = 2.0A$.