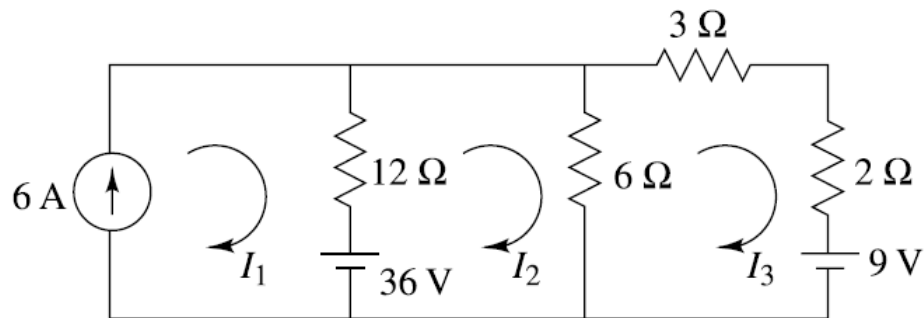


Unit I: Assessment: Q & A (Selected)

Lecture 11

1. Find the current through the 2Ω resistor.



SOLUTION: Mesh 1 contains a current source of 6 A. Hence, we cannot write KVL equation for Mesh 1. Since direction of current source and mesh current I_1 are same

$$I_1 = 6 \text{ A}$$

Applying KVL to Mesh 2,

$$36 - 12(I_2 - I_1) - 6(I_2 - I_3) = 0$$

$$36 - 12(I_2 - 6) - 6I_2 + 6I_3 = 0$$

$$18I_2 - 6I_3 = 108$$

Applying KVL to Mesh 3,

$$-6(I_3 - I_2) - 3I_3 - 2I_3 - 9 = 0$$

$$6I_2 - 11I_3 = 9$$

Solving equations (ii) and (iii),

$$I_3 = 3 \text{ A}$$

$$I_{2\Omega} = 3 \text{ A}$$