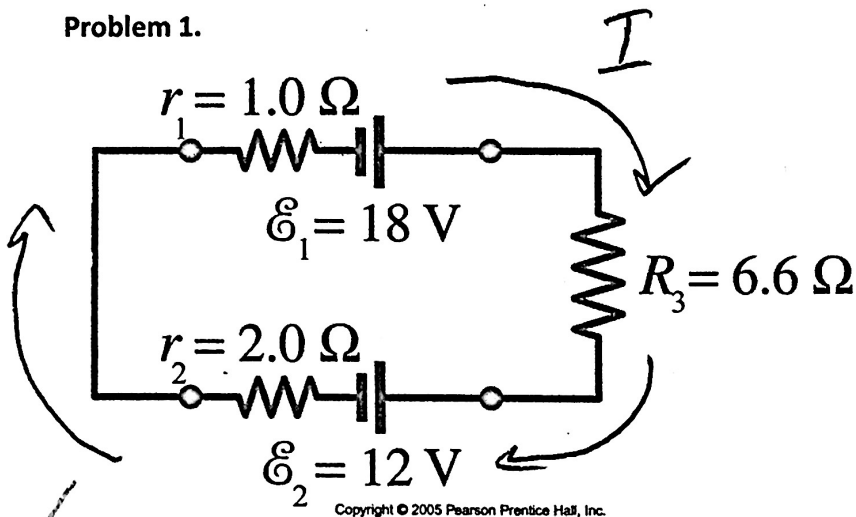


Kirchoff's Laws #2

Find the magnitudes and the direction for every unique current in these circuits.

Problem 1.



Loop Rule

$$18V - 6.6I - 12V - 2I - 1I = 0$$

$$6V = 9.6I$$

$$I = 0.625A$$

Positive, so direction
in diagram is
correct.

Problem 2.

Step 1

Junction Rule

$$I_1 + I_3 = I_2 \Rightarrow I_1 - 0.25A = 0.5A$$

$$I_1 = 0.75A$$

Direction is correct in Diagram

Step 2

Loop A (CW)

$$9V - 18I_2 = 0$$

$$9V = 18I_2$$

$$I_2 = 0.5A$$

Direction is correct in Diagram

Step 3

Loop B (CCW)

$$6V - 18I_2 - 12I_3 = 0$$

$$6V - 9V = 12I_3$$

$$-3V = 12I_3$$

$$I_3 = -0.25A$$

Negative, so direction in diagram is backward

From loop rules

Step 4

