

Find R

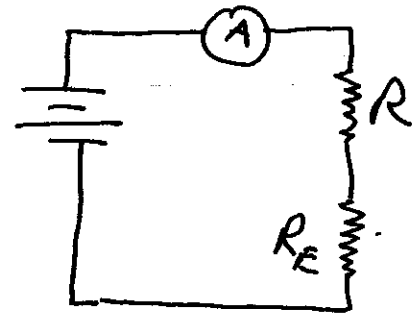
Use $E = IR$ to find total resistance to allow 1 amp with 12 volts

$$E = IR_T$$

$$R_T = \frac{E}{I} = \frac{12V}{1 \text{ amp}}$$

$$R_T = 12 \Omega$$

We need 12Ω for the overall total resistance

to get R_E use

$$\frac{1}{R_E} = \frac{1}{R_1} + \frac{1}{R_2}$$

$$\frac{1}{R_E} = \frac{1}{6} + \frac{1}{3}$$

$$\frac{1}{R_E} = \frac{1}{6} + \frac{2}{6} = \frac{3}{6} = \frac{1}{2}$$

$$\therefore R_E = 2 \Omega$$

3rd

Since $R_E + R$ are in series use

$$R_T = R_E + R$$

$$12 \Omega = 2 \Omega + R$$

$$R = 10 \Omega$$

R must be 10Ω for the current and voltage to be correct