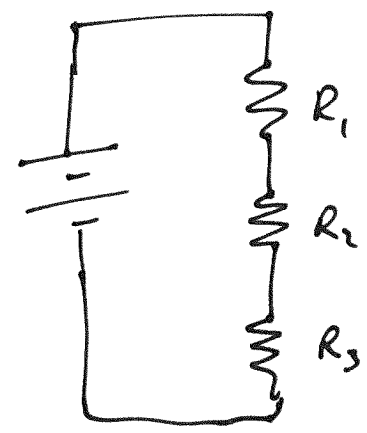


Ch. 10 Prob 73

$$R_1 = R_2 = R_3 = 300 \Omega$$

Battery Rating 3 Amp Hours

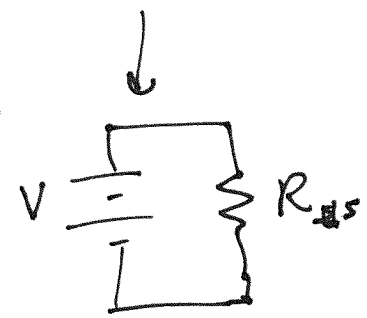
For AAA Battery $V = 1.5V$



a) Resistors in series

~~$R_s = R_1 + R_2 + R_3$~~
 $R_s = R_1 + R_2 + R_3$
 $= 300 + 300 + 300$

$R_s = 900 \Omega$



Find the current

$$V = IR \rightarrow I = \frac{V}{R} = \frac{1.5V}{900 \Omega} = 1.67 \times 10^{-3} A$$

$$\text{Rating} = I \cdot \Delta t \rightarrow \Delta t = \frac{\text{Rating}}{I} = \frac{3 \text{ Amp Hours}}{0.00167 A}$$

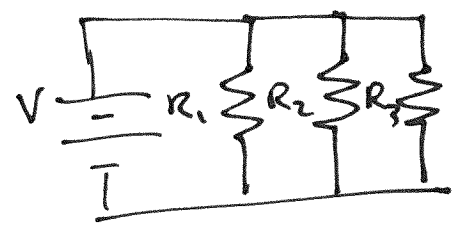
$$\Delta t = \boxed{1796 \text{ Hours}}$$
$$= 74.9 \text{ days}$$

b) Resistors in Parallel

$$\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$\frac{1}{R_p} = \frac{1}{300} + \frac{1}{300} + \frac{1}{300} = \frac{3}{300}$$

$R_p = 100 \Omega$



Current $I = \frac{V}{R} = \frac{1.5V}{100 \Omega} = 0.015 A$

$$\Delta t = \frac{\text{Rating}}{I} = \frac{3 \text{ Amp Hours}}{0.015 A} = \boxed{200 \text{ Hours}}$$

8.3 days