

**Parallel and Series Circuits Practice**

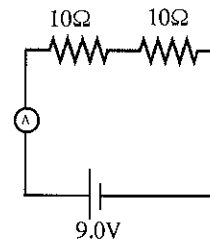
Use ACE-M to solve the following problems.

1. Total Resistance = 20Ω

$$R_{tot} = 10 + 10 = 20$$

Current through the ammeter = .45 amps

$$I = \frac{V}{R} = \frac{9}{20} =$$

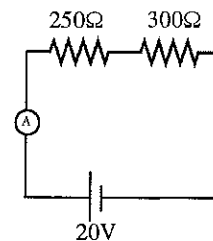


2. Total Resistance = 550Ω

$$R_{tot} = 250 + 300 = 550$$

Current through the ammeter = .036 amps

$$I = \frac{V}{R} = \frac{20}{550}$$

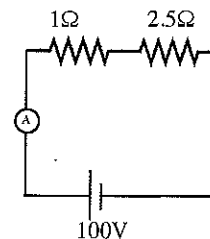


3. Total Resistance = 3.5Ω

$$R_{tot} = 1 + 2.5 = 3.5$$

Current through the ammeter = 28.57 amps

$$I = V/R = \frac{100}{3.5}$$

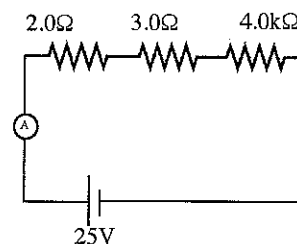


4. Total Resistance = 9Ω

$$R_{tot} = 2 + 3 + 4 = 9$$

Current through the ammeter = 2.7 amps

$$I = \frac{V}{R} = \frac{25}{9}$$

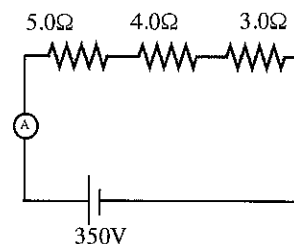


5. Total Resistance = 12Ω

$$R_{tot} = 5 + 4 + 3 = 12$$

Current through the ammeter = 29.2 amps

$$I = \frac{V}{R} = \frac{350}{12}$$

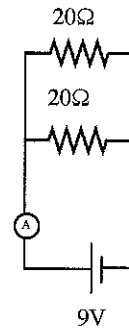


6. Total Resistance = 10 Ω

$$\frac{1}{R_{tot}} = \frac{1}{20} + \frac{1}{20} = \frac{2}{20} = \frac{1}{10} \text{ flip } = 10$$

Current through the ammeter = .9 amps

$$I = \frac{V}{R} = \frac{9}{10}$$

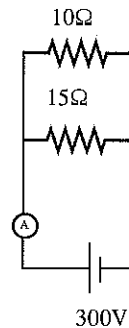


7. Total Resistance = 6 Ω

$$\frac{1}{R_{tot}} = \frac{1.3}{10 \cdot 3} + \frac{1.2}{15 \cdot 2} = \frac{3}{30} + \frac{2}{30} = \frac{5}{30} \text{ flip } \frac{30}{5} = 6$$

Current through the ammeter = 50 amps

$$I = \frac{V}{R} = \frac{300}{6} = 50$$

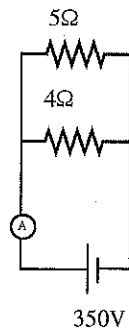


8. Total Resistance = 2.2 Ω

$$\frac{1}{R_{tot}} = \frac{1.4}{5 \cdot 4} + \frac{1.5}{4 \cdot 5} = \frac{4}{20} + \frac{5}{20} = \frac{9}{20} \text{ flip } \frac{20}{9}$$

Current through the ammeter = 159 amps

$$I = \frac{V}{R} = \frac{350}{2.2}$$

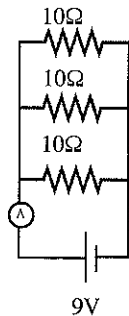


9. Total Resistance = 3.3 Ω

$$\frac{1}{R_{tot}} = \frac{1}{10} + \frac{1}{10} + \frac{1}{10} = \frac{3}{10} \text{ flip } \frac{10}{3}$$

Current through the ammeter = 2.7 amps

$$I = \frac{V}{R} = \frac{9}{3.3}$$



10. Total Resistance = 1.15 Ω

$$\frac{1}{R_{tot}} = \frac{1.6}{5 \cdot 6} + \frac{1.15}{2 \cdot 15} + \frac{1.5}{6 \cdot 5} = \frac{6}{30} + \frac{15}{30} + \frac{5}{30} = \frac{26}{30} \text{ flip } \frac{30}{26}$$

Current through the ammeter = 26 amps

$$I = \frac{V}{R} = \frac{30}{1.15}$$

