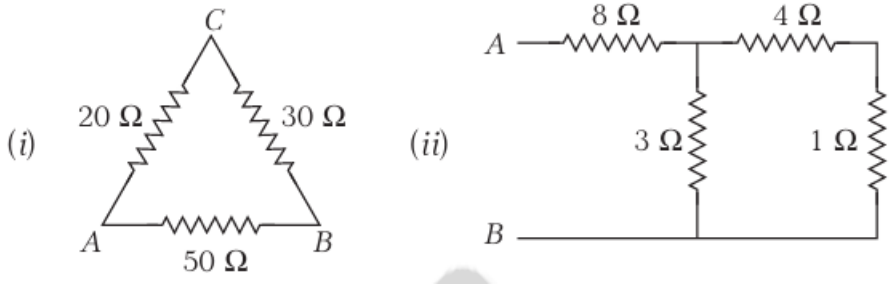
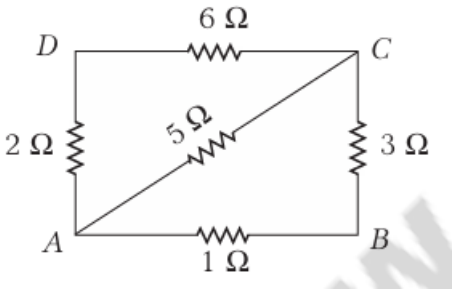
Physics Questions

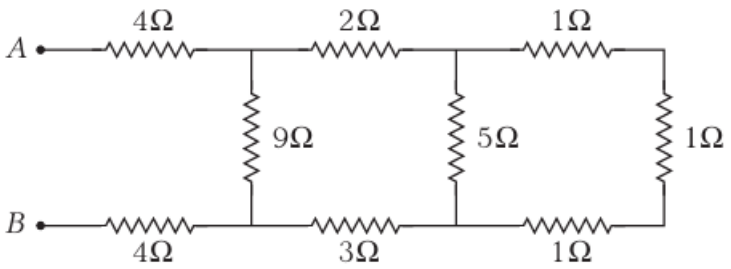
1. Find the equivalent resistance between points A and B in the given network of resistors.



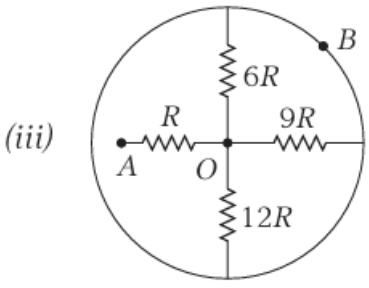
2. Find the equivalent resistance between points A and D in the given network of resistors.



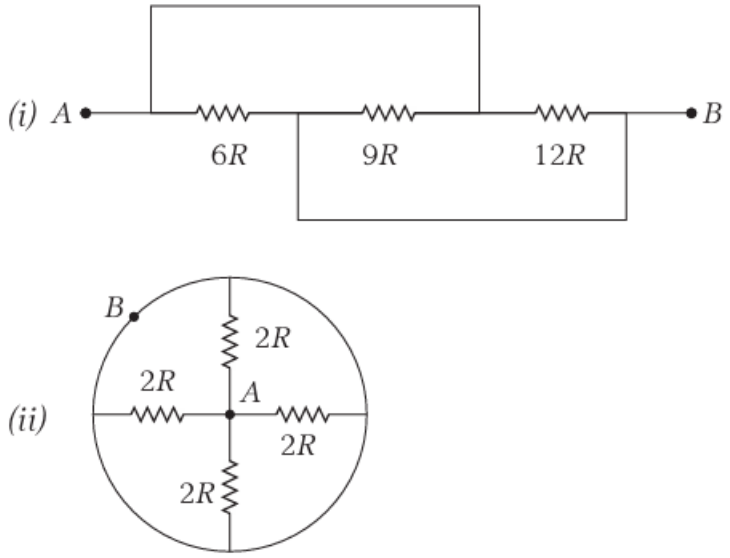
3. Find the equivalent resistance between points A and B in the given network of resistors.



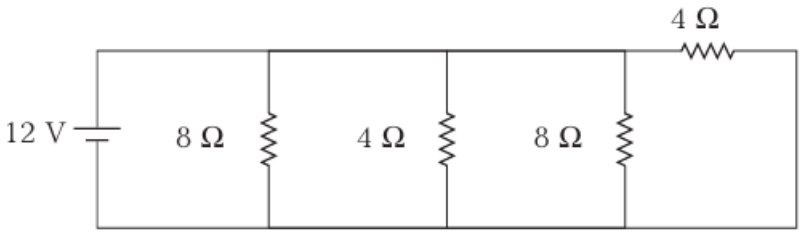
4. Find the equivalent resistance between points A and B in the given network of resistors.



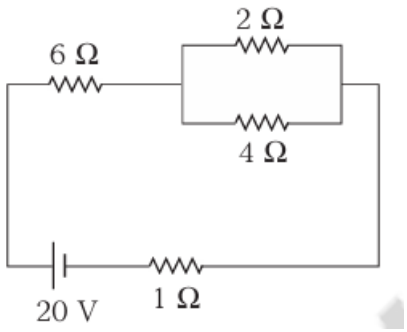
5. Find the equivalent resistance between points A and B in the given network of resistors.



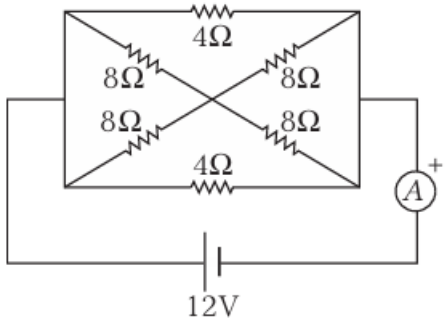
6. Determine the current supplied by the battery in the circuit as shown.



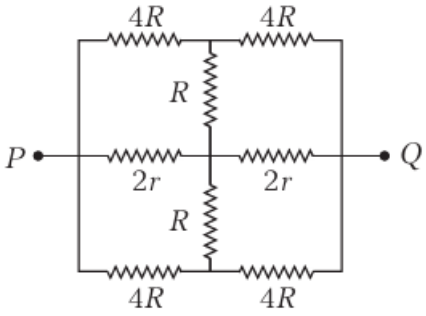
7. Find the currents in the resistances 2 Ω and 4 Ω in the given circuit.



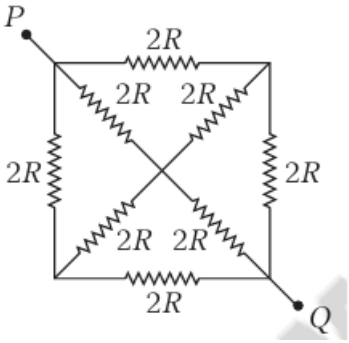
8. Calculate the current shown by the ammeter A in the circuit shown in the figure.



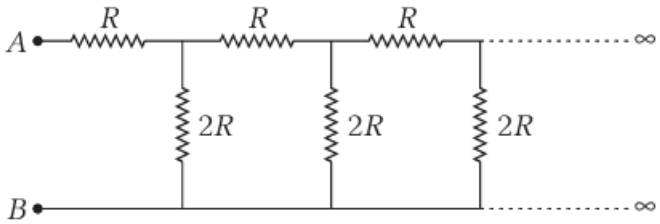
9. Find the equivalent resistance between points P and Q in the given network of resistors.



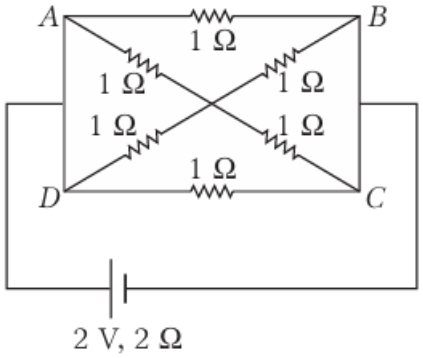
10. Find the equivalent resistance between points P and Q in the given network of resistors.



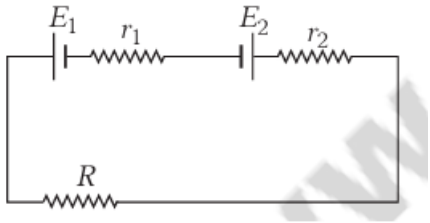
11. Find the equivalent resistance between points A and B in the given network of resistors.



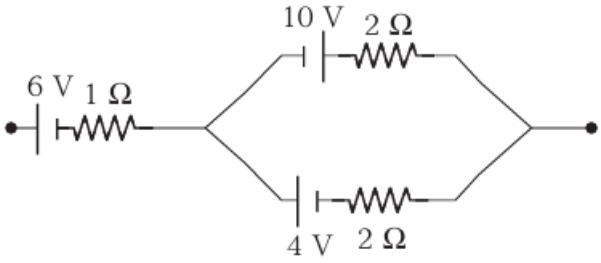
12. Find the current drawn from a cell of emf 2 V and internal resistance 2 Ω connected to the network given below.



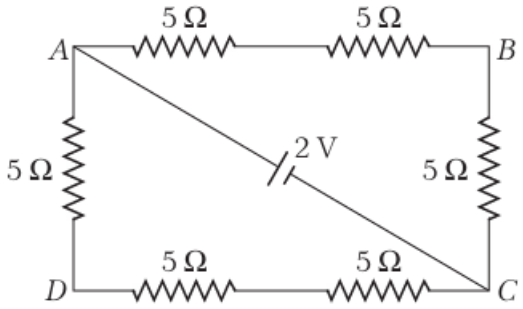
13. In the circuit shown in the figure, $E_1 = 10\,\text{V}$, $E_2 = 4\,\text{V}$, $r_1 = r_2 = 1\,\Omega$, and $R = 2\,\Omega$. Find the potential difference across battery 1 and battery 2.



14. Find the emf and internal resistance of a single battery which is equivalent to a combination of three batteries as shown in the figure.



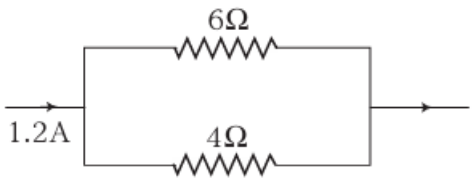
15. The potential difference between points A and B of the following figure is



(a) $\frac{2}{3}\,\text{V}$

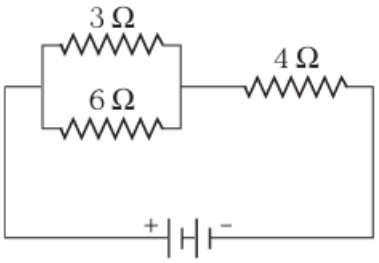
(b) $\frac{8}{9}$ V
(c) $\frac{4}{3}$ V
(d) 2 V

16. In the figure given below
the current passing through the 6 Ω resistor is:



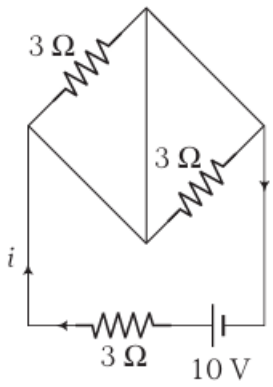
(a) 0.40 A
(b) 0.48 A
(c) 0.72 A
(d) 0.80 A

17. In the figure given below
the current passing through the 3 Ω resistor is 0.8 A. The potential drop across the 4 Ω resistor is:



(a) 9.6 V
(b) 2.6 V
(c) 4.8 V
(d) 1.2 V

18. Current i as shown in the circuit
will be:



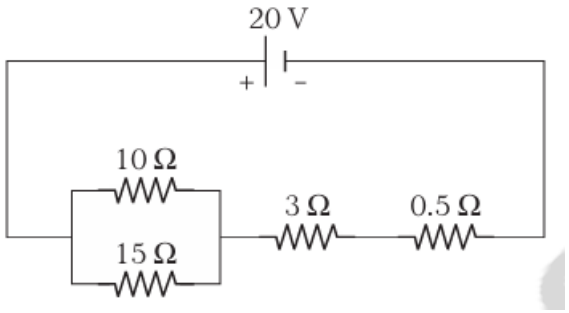
(a) 10 A

(b) $\frac{10}{3}$ A

(c) ZERO

(d) INFINITE

19. In the figure given below
the current flowing through the 10 Ω resistance is:



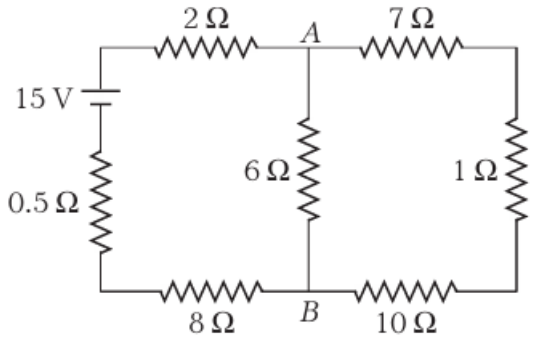
(a) 12 A

(b) 1.2 A

(c) 0.8 A

(d) 0.4 A

20. The current drawn from the battery in the circuit diagram shown
is:



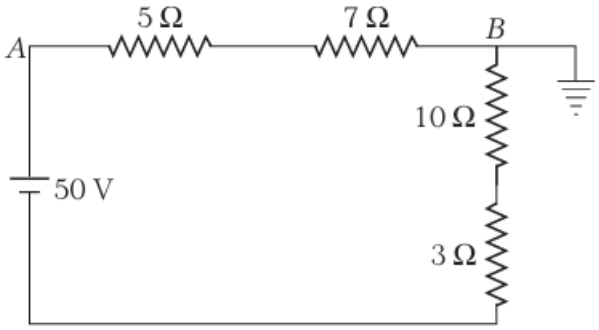
(a) 1 A

(b) 2 A

(c) 1.5 A

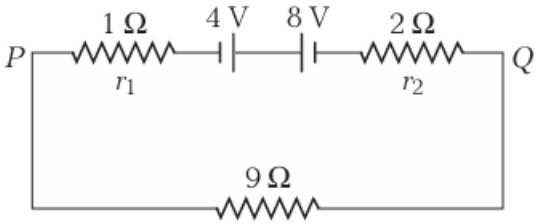
(d) 3 A

21. In the circuit shown
the point B is earthed. The potential at the point A is:



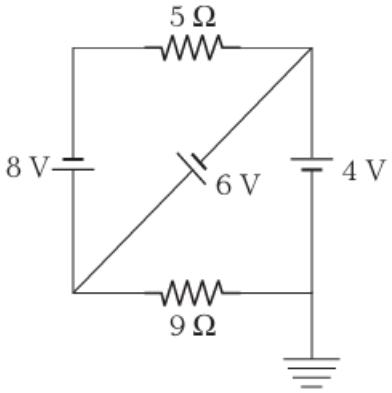
(a) 14 V
(b) 24 V
(c) 26 V
(d) 50 V

22. Two batteries of emf 4 V and 8 V with internal resistances 1 Ω and 2 Ω are connected in a circuit with a resistance of 9 Ω as shown in the figure
The current and potential difference between the points P and Q are:



(a) $\frac{1}{3}$ A and 3 V
(b) $\frac{1}{9}$ A and 9 V
(c) $\frac{1}{6}$ A and 4 V
(d) $\frac{1}{2}$ A and 12 V

23. The current flowing through the 5 Ω resistance in the given circuit is:

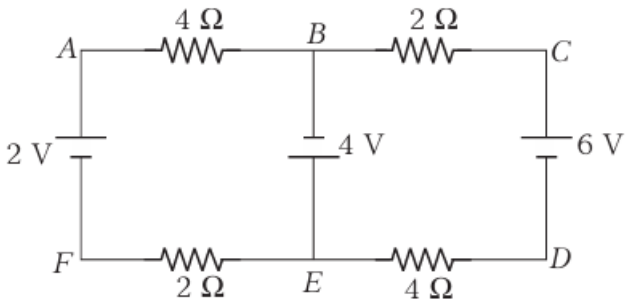


(a) 10 A
(b) 1 A

(c) 2.5 A

(d) 0.4 A

24. Find the currents in different branches of the electric circuit shown in the figure



25. A letter 'A' consists of a uniform wire of resistance 0.2 Ω per cm. The sides of the letter are each 20 cm long and the cross-piece in the middle is 10 cm long while the apex angle is 60°. Find the resistance of the letter between the two ends of the legs.

26. A voltmeter of resistance 994 Ω is connected across a cell of emf 1 V and internal resistance 6 Ω. Find the potential difference across the voltmeter, that across the terminals of the cell, and the percentage error in the reading of the voltmeter.

27. Two identical cells of emf 1.5 V each joined in parallel provide supply to an external circuit consisting of two resistances of 17 Ω each joined in parallel. A very high resistance voltmeter reads the terminal voltage of the cells to be 1.4 V. Calculate the internal resistance of each cell.

28. Find the minimum number of cells required to produce an electric current of 1.5 A through a resistance of 30 Ω. Given that the emf of each cell is 1.5 V and internal resistance is 1.0 Ω.

29. 136 cells, each of internal resistance 0.5 Ω and emf of 1.5 V, are used to send maximum current through an external circuit of 2 Ω resistance. Find the best mode of grouping them and the maximum current through the external circuit.