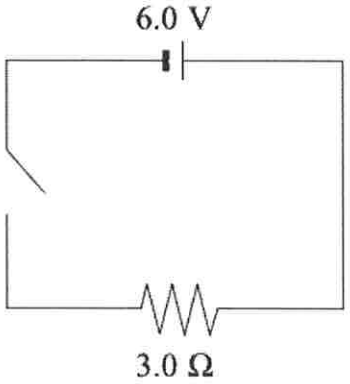
PHYSICS 11

ELECTRIC CIRCUITS 4

1.

A 6.0 V battery is connected through a switch to a 3.0 Ω resistor as shown below.



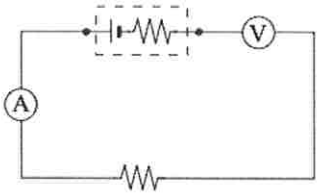
What total charge flows through the resistor if the switch is closed for 40 s ?

A. 2.0×10^{-9} C
B. 2.0 C
C. 80 C
D. 480 C

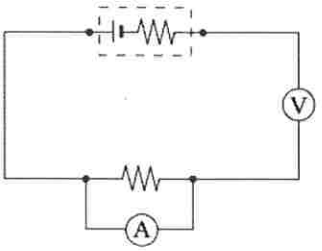
2.

Which of the following diagrams shows meters correctly placed to measure the circuit current and the terminal voltage of the battery?

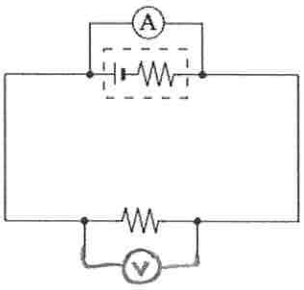
A.



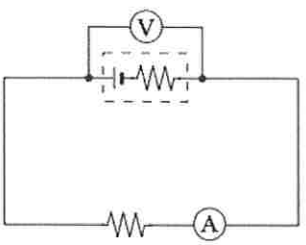
B.



C.

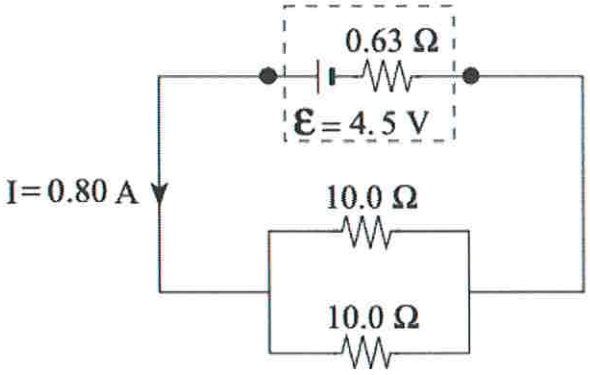


D.



3.

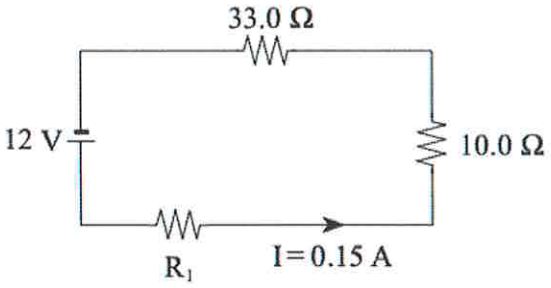
. What is the terminal voltage of the cell in the circuit shown in the diagram below?



A. 0.50 V
B. 3.5 V
C. 4.0 V
D. 4.5 V

4.

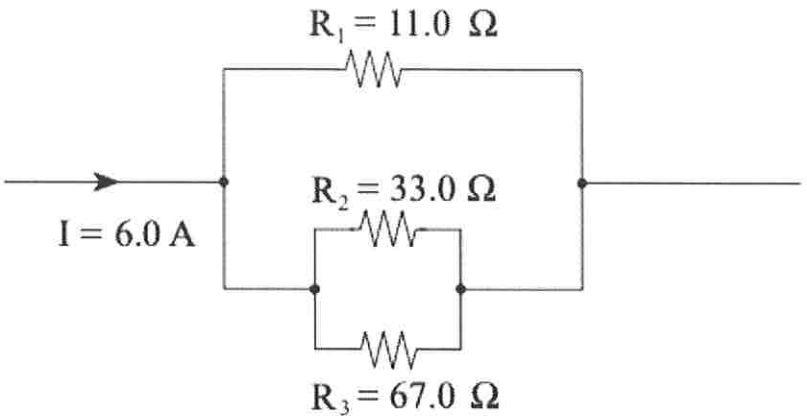
What is the power dissipated in resistor R_1 in the circuit shown in the diagram below?



A. 0.83 W
B. 0.97 W
C. 1.8 W
D. 2.8 W

5.

The diagram below shows part of an electrical circuit.

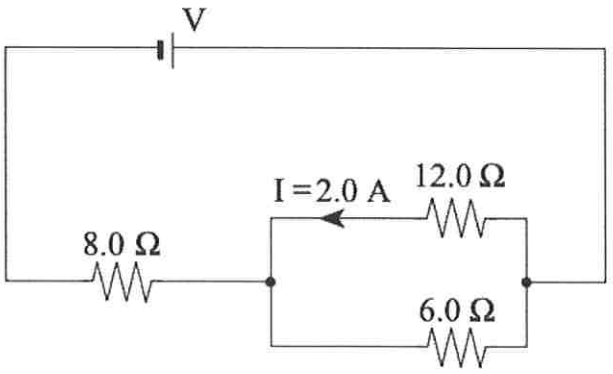


What is the current through resistor R_1?

A. 2.0 A
B. 3.0 A
C. 4.0 A
D. 6.0 A

6.

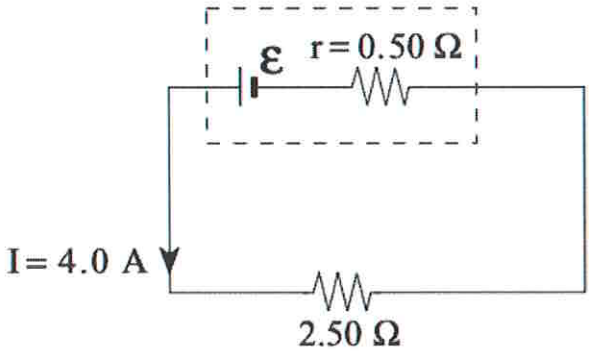
What is the voltage, V, of the power supply shown in the circuit?



A. 24 V
B. 52 V
C. 72 V
D. 96 V

7.

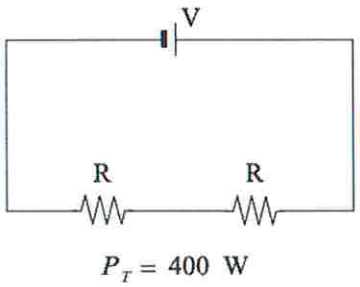
What is the emf of the battery shown?



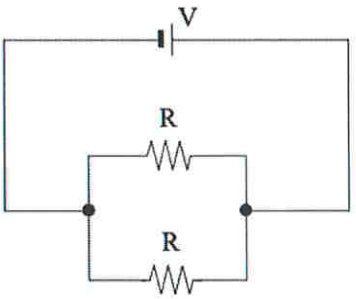
A. 2.0 V
B. 8.0 V
C. 10 V
D. 12 V

8.

Two identical resistors connected in series have a **total** power output of 400 W. Assuming V and R remain constant, what would the total power output be when the resistors are re-connected in parallel?



$P_T = 400$ W

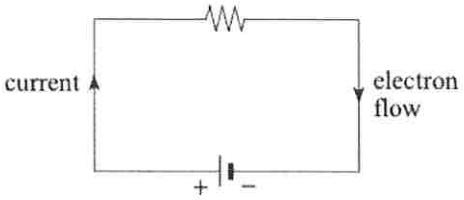


A. 200 W
B. 400 W
C. 800 W
D. 1 600 W

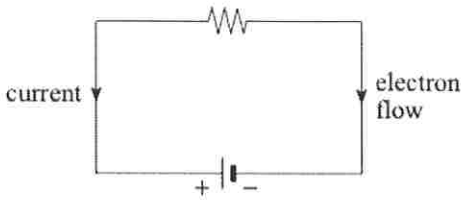
9.

Which of the following correctly shows the direction of conventional current and electron flow?

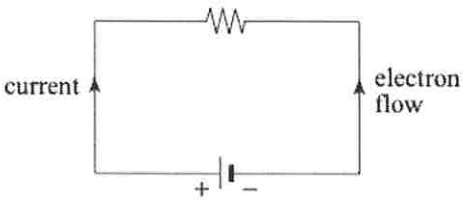
A.



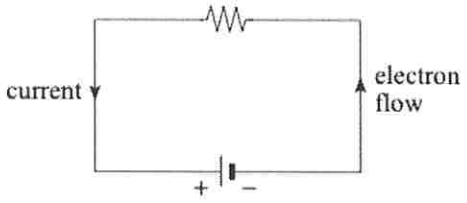
B.



C.

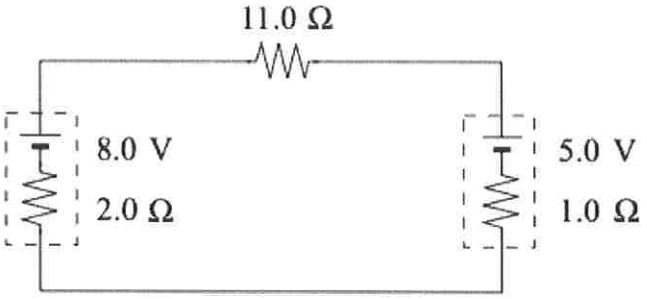


D.



10.

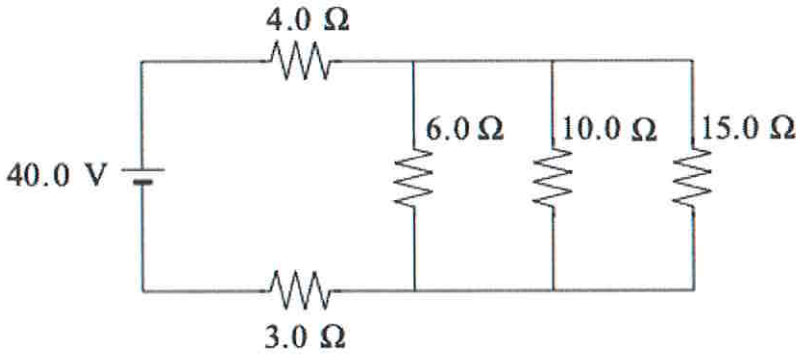
What current flows through the 11.0 Ω resistor?



A. 0.21 A
B. 0.27 A
C. 0.93 A
D. 1.2 A

11.

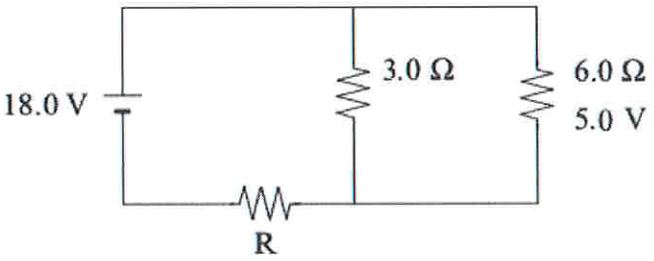
Calculate the current through the 6.0 Ω resistor in the circuit shown.



A. 1.1 A
B. 2.0 A
C. 4.0 A
D. 6.7 A

12.

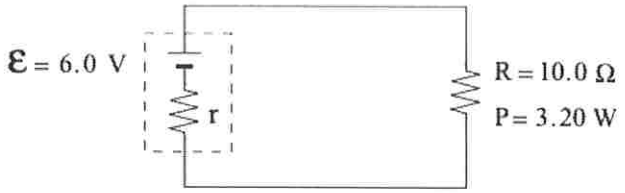
. In the following circuit, determine the value of resistor R.



A. 3.2 Ω
B. 5.2 Ω
C. 9.0 Ω
D. 23 Ω

13.

A battery provides 3.20 W of power to an external resistance. What power is dissipated as heat by the internal resistance within the battery?



A. 0.19 W
B. 3.4 W
C. 3.6 W
D. 60 W

14.

A 75 W bulb is connected across a 120 V source. While the bulb is lighted, what is the effective resistance of the bulb?

A. 0.62 Ω
B. 1.6 Ω
C. 47 Ω
D. 190 Ω