



Physics 3204

Unit 2: Section 2 -Current Electricity

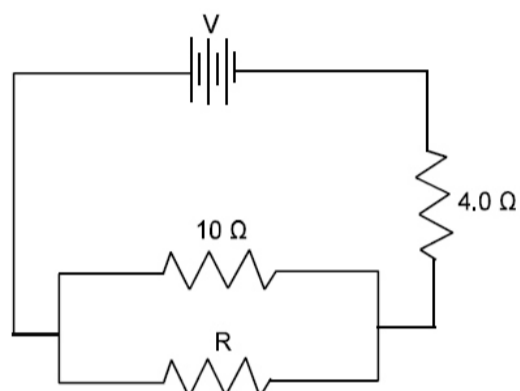
Worksheet 8: Circuit Analysis – Part 1

1. A 6.0Ω and a 12Ω resistor are connected in series to a 36 V battery. What power is dissipated by the 6.0Ω resistor?

- (A) 6.0 W
- (B) 12 W
- (C) 24 W
- (D) 48 W

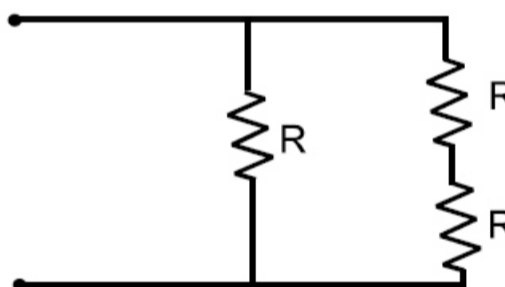
2. What value of R in the circuit below will cause the parallel combination to dissipate the same power as the 4.0Ω resistor?

- (A) 0.26Ω
- (B) 2.9Ω
- (C) 6.0Ω
- (D) 6.7Ω



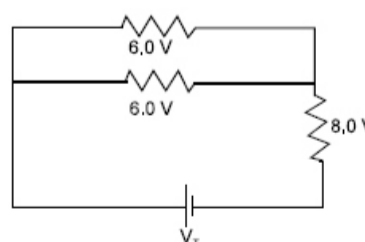
3. Three identical resistors shown below each have resistance R . What is the total resistance of the arrangement as shown? JUNE 2009

- (A) $\frac{2}{3}R$
- (B) R
- (C) $\frac{3}{2}R$
- (D) $3R$



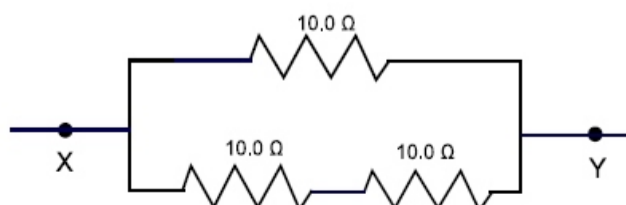
4. What is the voltage, V_T , across the source in the circuit below?

- (A) 2.2 V
- (B) 11.0 V
- (C) 14.0 V
- (D) 20.0 V



5. What is the total resistance between points X and Y below?

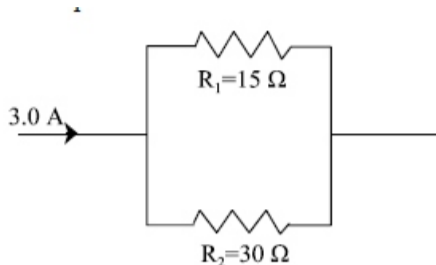
- (A) 3.33Ω
- (B) 6.67Ω
- (C) 15.0Ω



(D) 30.0Ω

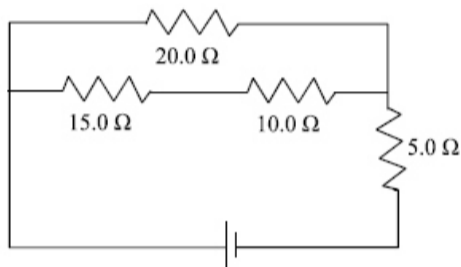
6. The diagram below shows part of an electric circuit. What is the current through resistor R_1 ?

- (A) 1.0 A
- (B) 1.4 A
- (C) 2.0 A
- (D) 3.0 A



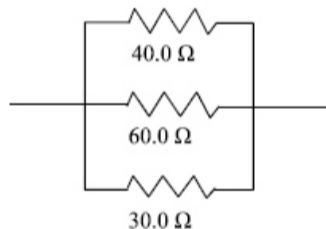
7. What is the total resistance of the circuit below?

- (A) 9.6Ω
- (B) 12.0Ω
- (C) 16.1Ω
- (D) 50.0Ω

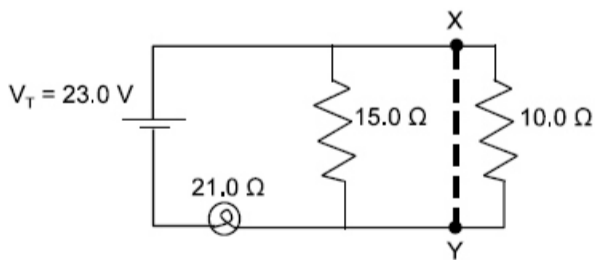


8. In the circuit below, the current through the 40.0Ω resistor is 90.0 mA . What is the current through the 60.0Ω resistor?

- (A) 30.0 mA
- (B) 45.0 mA
- (C) 60.0 mA
- (D) 90.0 Ma



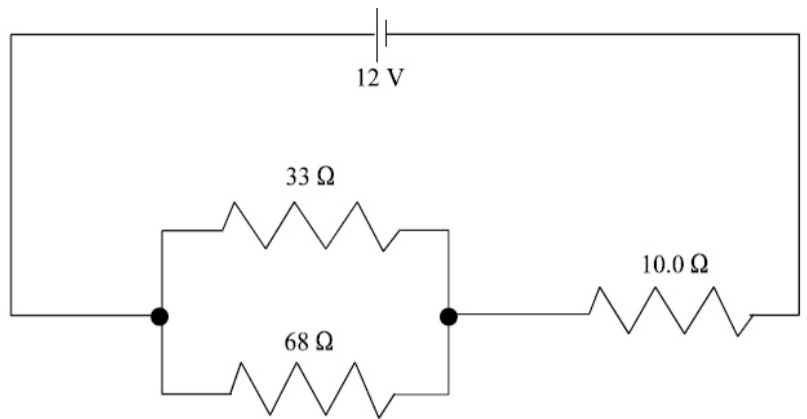
9. If a copper wire was connected across points X and Y in the circuit below, what would be the current through the bulb and what would happen to the brightness of bulb?



	Current (A)	Brightness
(A)	0.64	Dimmer
(B)	0.64	Brighter
(C)	1.1	Dimmer
(D)	1.1	Brighter

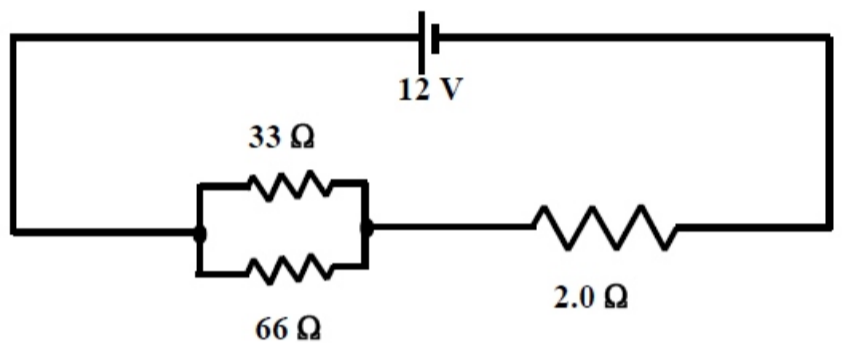
10. What is the current through the $10.0\ \Omega$ resistor in the circuit below?

- (A) $0.11\ \text{A}$
- (B) $0.37\ \text{A}$
- (C) $1.2\ \text{A}$
- (D) $1.7\ \text{A}$



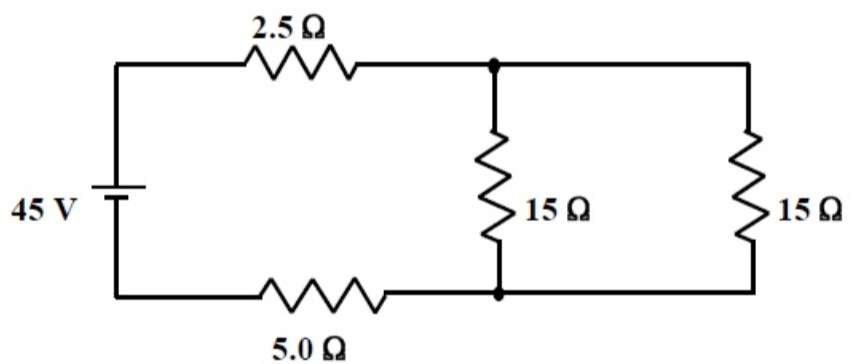
11. What is the current through the $2.0\ \Omega$ resistor in the circuit below?

- (A) $0.12\ \text{A}$
- (B) $0.50\ \text{A}$
- (C) $2.0\ \text{A}$
- (D) $5.9\ \text{A}$



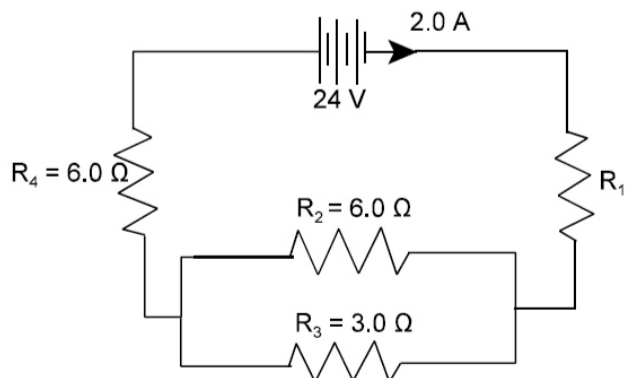
12. What is the power dissipated by the $2.5\ \Omega$ resistor in the circuit below?

- (A) $0.28\ \text{W}$
- (B) $3.6\ \text{W}$
- (C) $23\ \text{W}$
- (D) $88\ \text{W}$

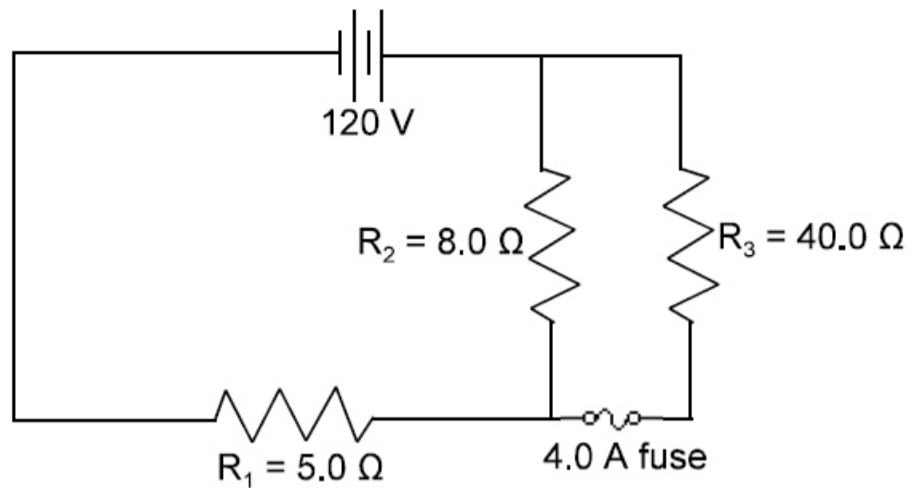


1. In the circuit shown, calculate: JUNE 2009

- i) the voltage for R_4 .
- ii) the value of R_1 .
- iii) the power dissipated in R_3 .

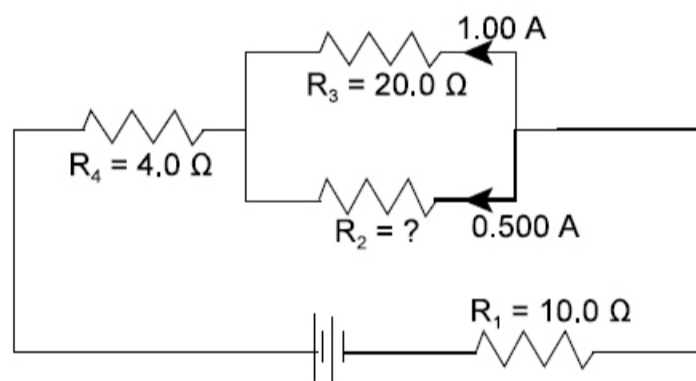


2. In the circuit shown: JUNE 2009



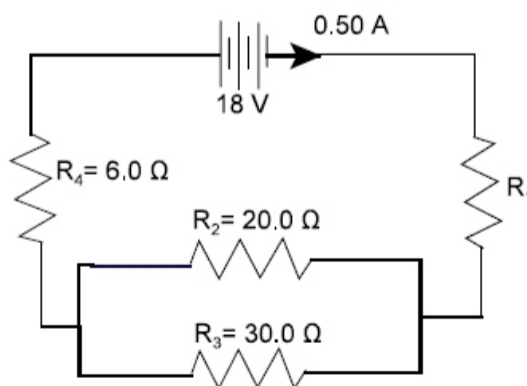
- i) calculate the total resistance.
- ii) calculate the voltage across resistor 2.
- i) calculate the total resistance.
- ii) calculate the voltage across resistor 2.

3. For the circuit below calculate: AUGUST 2008



- i) the value of R_2 .
- ii) the power dissipated in R_4 .
- iii) the voltage across the source.
- iv) Explain how the addition of another resistor in parallel will change the total resistance of the circuit.

4. For the circuit shown below, calculate: JUNE 2008



- i) the resistance of R_1 .
- ii) the power dissipated in R_4 .
- iii) the voltage drop across R_2 .