

Name _____ # _____

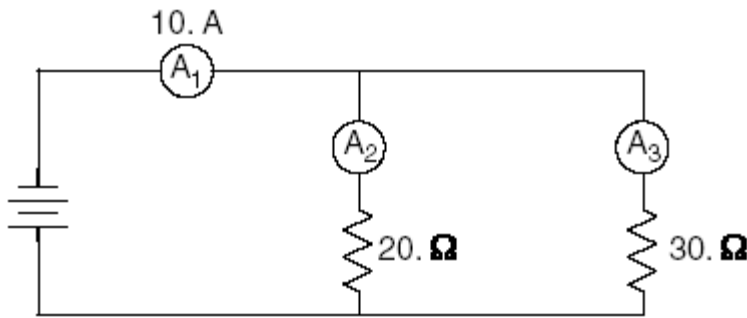
Section _____

St. Mary's Physics

Date _____

Analyzing Circuits

1. In the circuit diagram shown below, ammeter A1 reads 10. amperes.

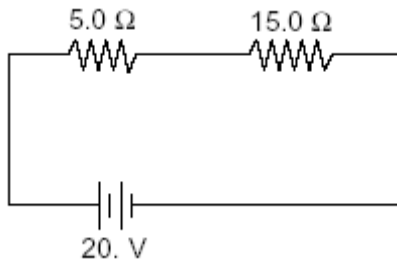


a) the current in ammeter A2 (hint - find R_T , then V_T , then I_1)

b) Total resistance =

c) potential difference of the source?

2. A 20.0-volt battery is connected to a 5.0-ohm resistor and a 15.0-ohm resistor as shown in the diagram below.

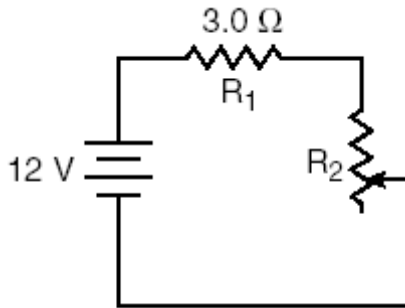


a) What is the current in the 15.0-ohm resistor?

b) What is the current in the 5.0-ohm resistor?

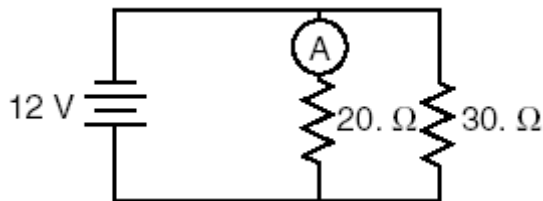
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3. The diagram below represents an electric circuit consisting of a 12-volt battery, a 3.0-ohm resistor, R_1 , and a variable resistor, R_2 .



a) At what value must the variable resistor be set to produce a current of 1.0 ampere through R_1 ?

4. Base your answers to questions a through c on the information and diagram below. A 20.-ohm resistor and a 30.-ohm resistor are connected in parallel to a 12-volt battery as shown. An ammeter is connected as shown.



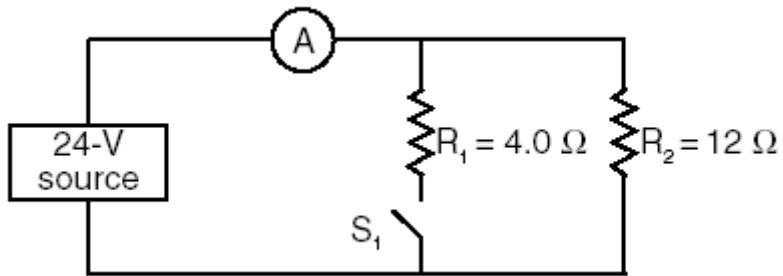
a) What is the equivalent resistance of the circuit?

b) What is the current reading of the ammeter?

c) What is the power of the 30.-ohm resistor?

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5. Base your answers to questions a through d on the circuit diagram below.



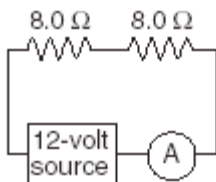
a) If switch S_1 is open, the reading of ammeter A is

b) If switch S_1 is closed, the equivalent resistance of the circuit is

c) find the potential difference across the first resistor

d) find the potential difference across the second resistor

6. The diagram below shows a circuit with two resistors.



a) What is the reading on ammeter A ?

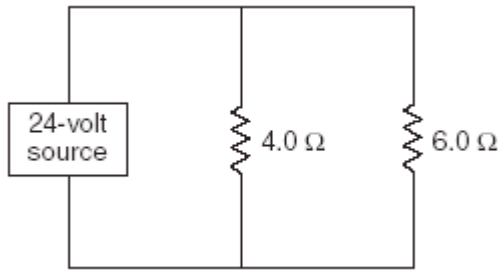
b) find the potential difference across the first and second resistor

$V_1 =$

$V_2 =$

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7.



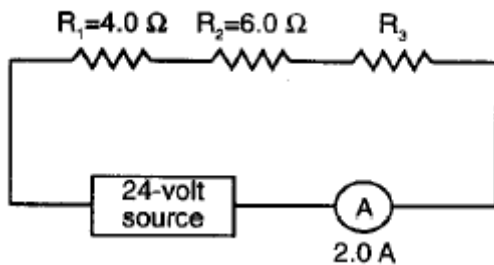
a) What is the total resistance of the circuit?

b) What is the total current in this circuit?

c) What is the potential difference across the first resistor?

d) What is the potential difference across the second resistor?

The diagram below shows a circuit with three resistors.

a) What is the resistance of resistor R_3 ?

b) What is the total resistance of the circuit?

c) What is the potential difference across the first resistor?

d) What is the potential difference across the second resistor?