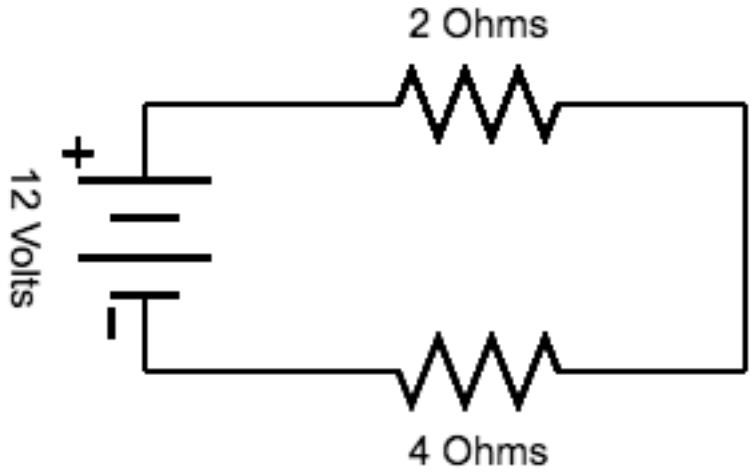
Name _____

Part C: Solving a Series Circuit
The goal of these problems is to identify the voltage, current, and resistance of each element of a series circuit.

Series Circuit Rules:
1: For each element and the total circuit, the formula V = IR. 2: The *current* is the same for every element. 3: The *voltage* and *resistance* add up to the total for each circuit element.

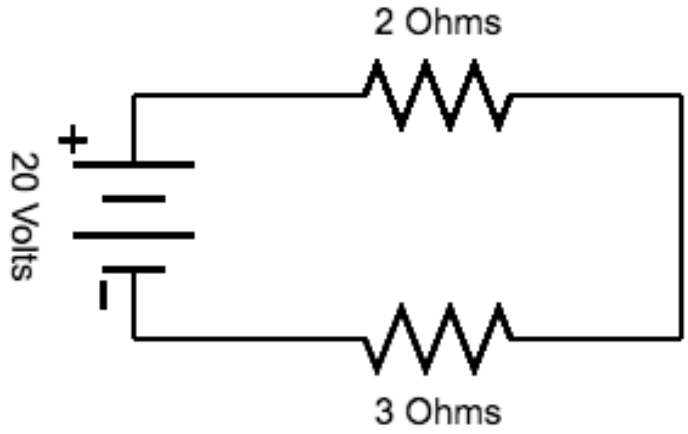
C.1 A 12-volt battery, a 2-ohm resistor, and a 4-ohm resistor in series.



	Resistor 1	Resistor 2	Total Circuit
Voltage (V)			
Current (A)			
Resistance (Ω)			

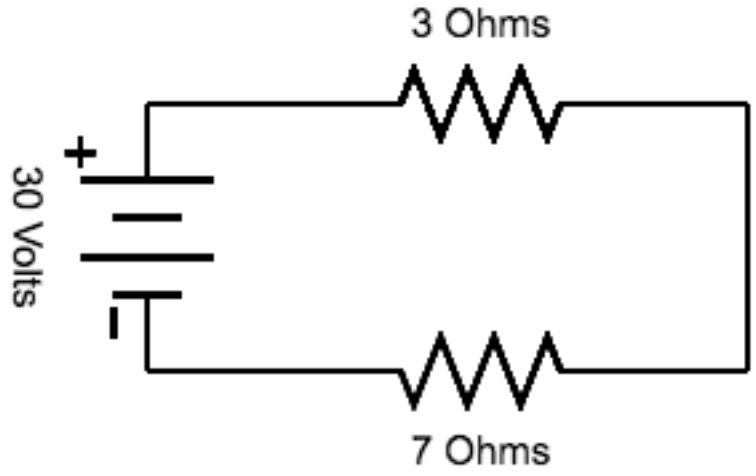
Name _____

C.2 A 20-Volt battery, a 2-ohm resistor, and a 3-ohm resistor in series.



	Resistor 1	Resistor 2	Total Circuit
Voltage (V)			
Current (A)			
Resistance (Ω)			

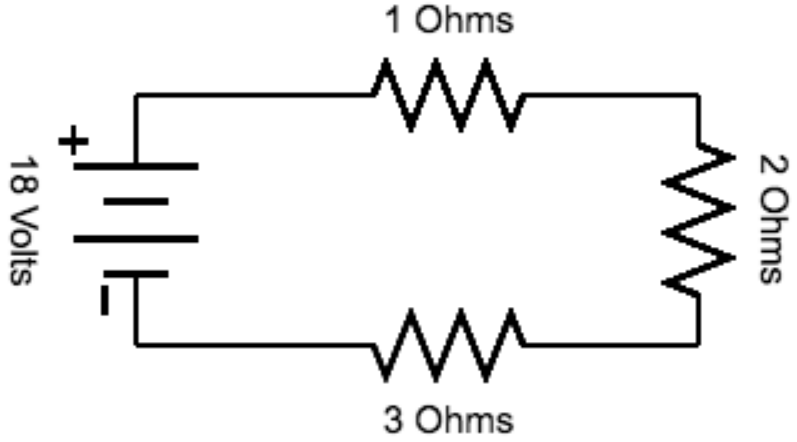
C.3 A 30-volt battery, a 3-ohm resistor, and a 7-ohm resistor in series.



	Resistor 1	Resistor 2	Total Circuit
Voltage (V)			
Current (A)			
Resistance (Ω)			

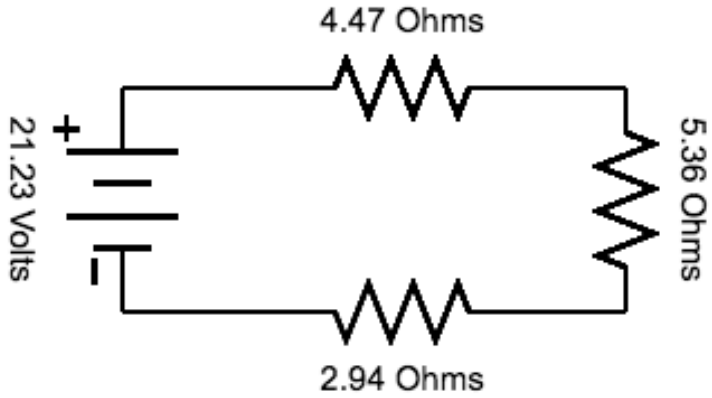
Name _____

C.4 An 18-volt battery, a 1-ohm resistor, a 2-ohm resistor, and a 3-ohm resistor in series.



	Resistor 1	Resistor 2	Resistor 3	Total Circuit
Voltage (V)				
Current (A)				
Resistance (Ω)				

C.5 A 21.23-volt battery, a 4.47-ohm resistor, and a 5.36-ohm resistor, and a 2.94-ohm resistor in series. [use a calculator for this problem, round each cell of the table to two decimal places]



	Resistor 1	Resistor 2	Resistor 3	Total Circuit
Voltage (V)				
Current (A)				
Resistance (Ω)				

Name _____

Answers:

C.1

	Resistor 1	Resistor 2	Total Circuit
Voltage (V)	4	8	12
Current (A)	2	2	2
Resistance (Ω)	2	4	6

C.2

	Resistor 1	Resistor 2	Total Circuit
Voltage (V)	8	12	20
Current (A)	4	4	4
Resistance (Ω)	2	3	5

C.3

	Resistor 1	Resistor 2	Total Circuit
Voltage (V)	9	21	30
Current (A)	3	3	3
Resistance (Ω)	3	7	10

C.4

	Resistor 1	Resistor 2	Resistor 3	Total Circuit
Voltage (V)	3	6	9	18
Current (A)	3	3	3	3
Resistance (Ω)	1	2	3	6

C.5

	Resistor 1	Resistor 2	Resistor 3	Total Circuit
Voltage (V)	7.43	8.91	4.89	21.23
Current (A)	1.66	1.66	1.66	1.66
Resistance (Ω)	4.47	5.36	2.94	12.77

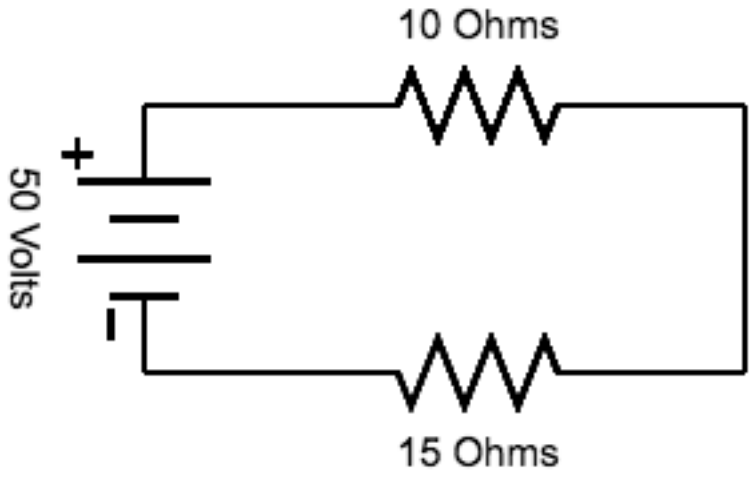
Results are rounded to 3 significant figures.

Name _____

Part F: Solving circuit problems with power

New Rule: In both series and parallel circuits, the formula P = IV applies for each element.

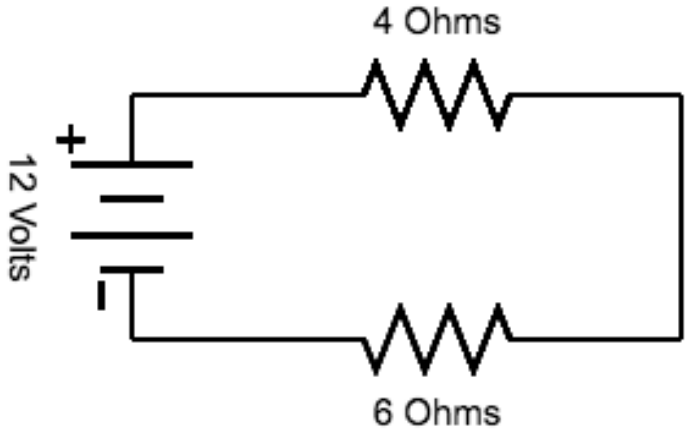
F.1 A *series* circuit has a 50-volt battery, a 10-ohm resistor, and a 15-ohm resistor.



	Resistor 1	Resistor 2	Total Circuit
Voltage (V)			
Current (A)			
Resistance (Ω)			
Power (W)			

Name _____

F.2 A *series* circuit has a 12-volt battery, and four-ohm resistor, and a six-ohm resistor.



	Resistor 1	Resistor 2	Total Circuit
Voltage (V)			
Current (A)			
Resistance (Ω)			
Power (W)			

F.1

	Resistor 1	Resistor 2	Total Circuit
Voltage (V)	20	30	50
Current (A)	2	2	2
Resistance (Ω)	10	15	25
Power (W)	40	60	100

F.2

	Resistor 1	Resistor 2	Total Circuit
Voltage (V)	4.8	7.2	12
Current (A)	1.2	1.2	1.2
Resistance (Ω)	4	6	10
Power (W)	5.76	8.64	14.4