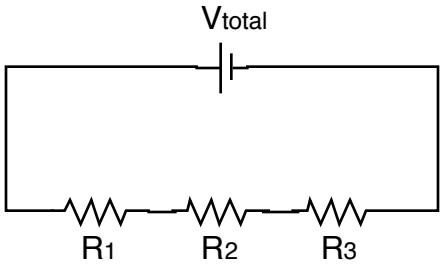
Circuit Worksheet Answers

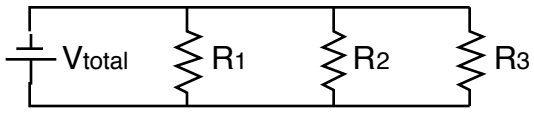
For each of the given circuits, calculate the equivalent resistance. Then, calculate the total current. Finally, calculate the individual currents and voltages for each resistor.

Circuit 1



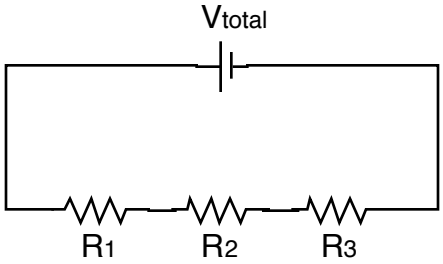
	R	*I*	*V*	
R_1	3 Ω	*1*	*3*	V_{total} = 9 v
R_2	3 Ω	*1*	*3*	I_{total} = *1*
R_3	3 Ω	*1*	*3*	R_{total} = *9*

Circuit 2



	R	*I*	*V*	
R_1	12 Ω	*1/2*	*6*	V_{total} = 6 v
R_2	12 Ω	*1/2*	*6*	I_{total} = *3/2*
R_3	12 Ω	*1/2*	*6*	R_{total} = *4*

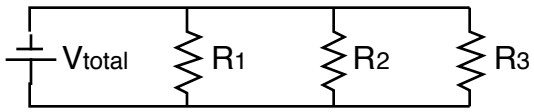
Circuit 3



	R	*I*	*V*	
R_1	4 Ω	*1/2*	*2*	V_{total} = 9 v
R_2	8 Ω	*1/2*	*4*	I_{total} = *1/2*
R_3	6 Ω	*1/2*	*3*	R_{total} = *18*

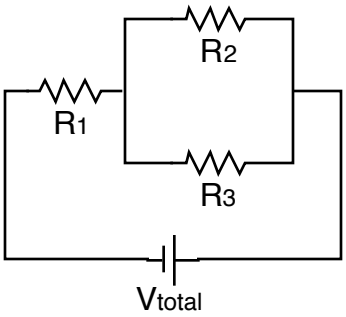
Circuit Worksheet Answers

Circuit 4



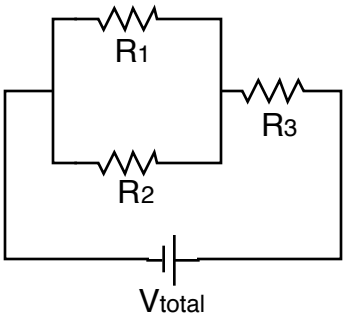
	R	*I*	*V*	
R_1	6 Ω	*1*	*6*	V_{total} = 6 v
R_2	12 Ω	*1/2*	*6*	I_{total} = *7/2*
R_3	3 Ω	*2*	*6*	R_{total} = *12/7*

Circuit 5



	R	*I*	*V*	
R_1	4 Ω	*2*	*8*	V_{total} = 12 v
R_2	4 Ω	*1*	*4*	I_{total} = *2*
R_3	4 Ω	*1*	*4*	R_{total} = *6*

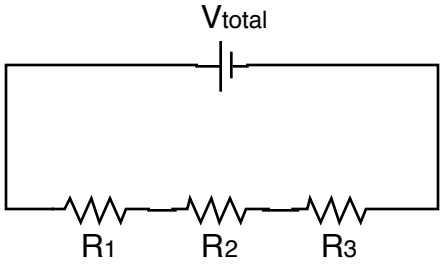
Circuit 6



	R	*I*	*V*	
R_1	6 Ω	*1/3*	*2*	V_{total} = 9 v
R_2	3 Ω	*2/3*	*2*	I_{total} = *1*
R_3	7 Ω	*1*	*7*	R_{total} = *9*

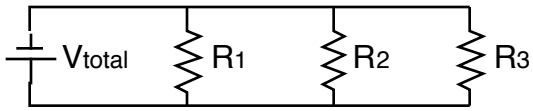
Circuit Worksheet Answers

Circuit 7



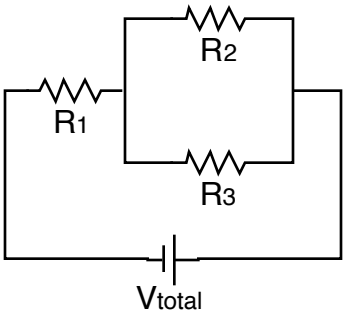
	R	*I*	*V*	
R_1	*1*	*2*	2 v	V_{total} = *18*
R_2	*5*	*2*	10 v	I_{total} = 2 a
R_3	3 Ω	*2*	*6*	R_{total} = 9 Ω

Circuit 8



	R	*I*	*V*	
R_1	8 Ω	*1/2*	*4*	V_{total} = *4*
R_2	*2*	2 a	*4*	I_{total} = 4 a
R_3	*8/3*	*3/2*	*4*	R_{total} = 1 Ω

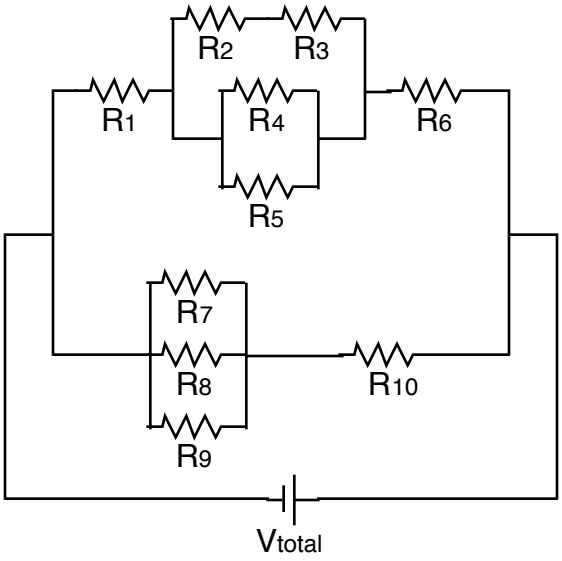
Circuit 9



	R	*I*	*V*	
R_1	*4/3*	*3*	4 v	V_{total} = *12*
R_2	4 Ω	*2*	*8*	I_{total} = 3 a
R_3	*8*	*1*	8 v	R_{total} = *4*

Circuit Worksheet Answers

Circuit 10



	R	*I*	*V*	
R_1	1 Ω	*7/2*	*7/2*	V_{total} = 18 v
R_2	3 Ω	*1/2*	*3/2*	I_{total} = *11/2*
R_3	5 Ω	*1/2*	*5/2*	R_{total} = *36/11*
R_4	2 Ω	*2*	*4*	
R_5	4 Ω	*1*	*4*	
R_6	3 Ω	*7/2*	*21/2*	
R_7	5 Ω	*4/5*	*4*	
R_8	5 Ω	*4/5*	*4*	
R_9	10 Ω	*2/5*	*4*	
R_{10}	7 Ω	*2*	*14*	