

Question 6

What power is required to run 9.0 A of current through a hair dryer connected to 120 V?

$$P = I * V = (9.0)(120)$$

$$1080 \text{ W}$$

Question 7

The current through a lamp connected to a 120 V source is 0.32 A.
What is the resistance of the lamp?

$$V = IR$$

$$120 = 0.32 * R$$

$$R = \frac{120}{0.32}$$

$$R = 375 \Omega$$

Question 7a

A radio operates at 6 volts and has a resistance of 360 Ohms, how much power does it draw?

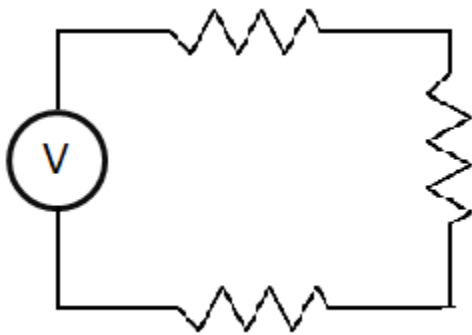
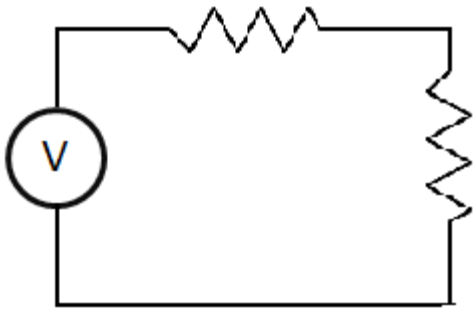
$$P = I \cdot V = \frac{V^2}{R} = I^2 \cdot R$$

$$P = \frac{6^2}{360}$$

$$P = 0.1 \text{ Watts}$$

Question 8

As resistors are added to a series circuit, the current in the circuit decreases.



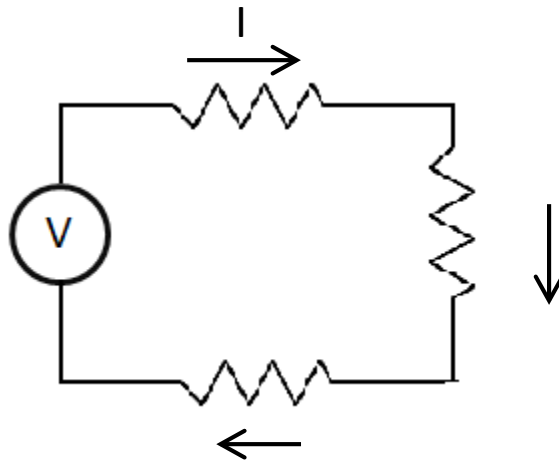
R ↑

$$I = \frac{V}{R}$$

↓

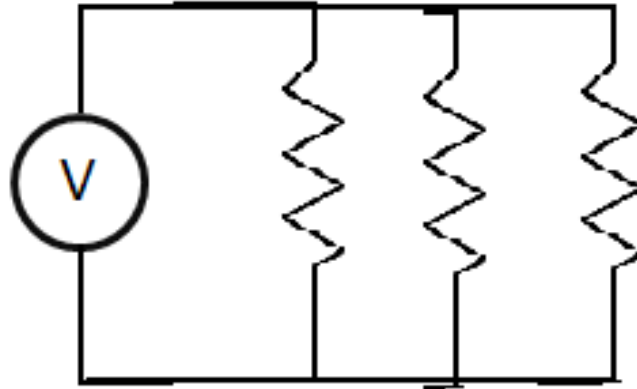
Question 9

Current is the same throughout in a Series circuit.



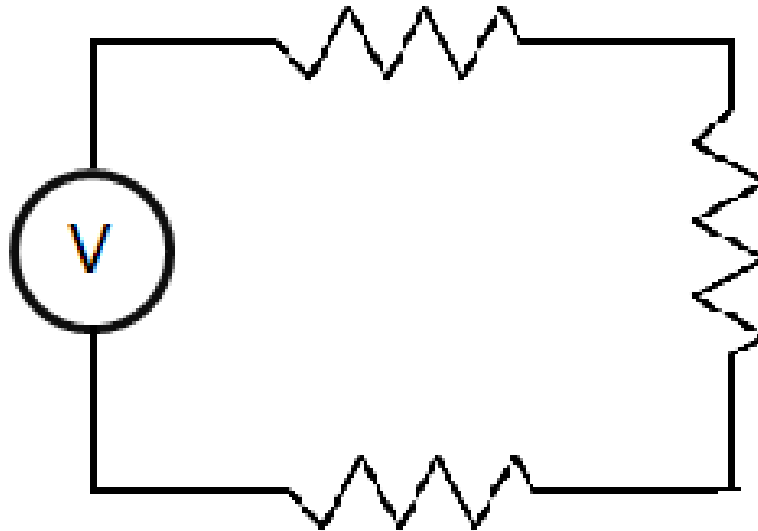
Question 10

Voltage drop in each branch is the same in a Parallel circuit.



Question 11

The total resistance is equal to the sum of the individual resistors in a Series circuit.



Question 12

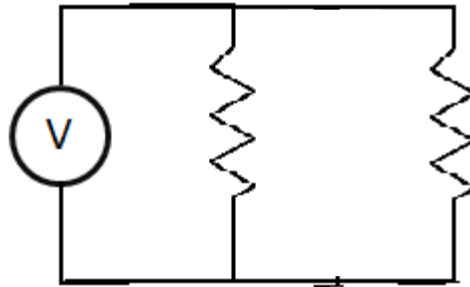
The sum of the voltage drops across the individual resistors is equal to the total voltage in a Series circuit.

Question 13

The total resistance in a Parallel circuit is less than the smallest resistor.

Question 14

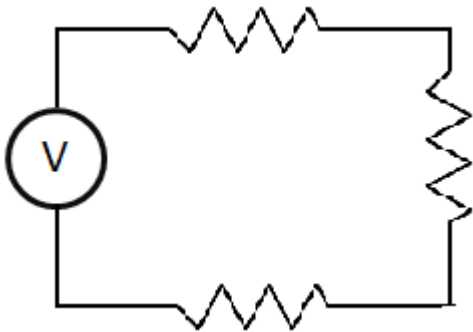
If you have three identical individual resistors in parallel and one is removed, the current in each of the remaining resistors stays the same While the total current in the circuit decreases.



Question 15

If you unscrew a bulb in a series circuit of several light bulbs, what happens to the remaining bulbs?

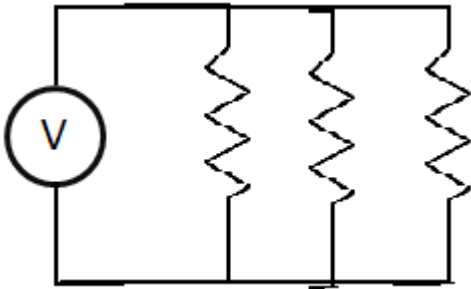
They all go out because the path is interrupted.



Question 16

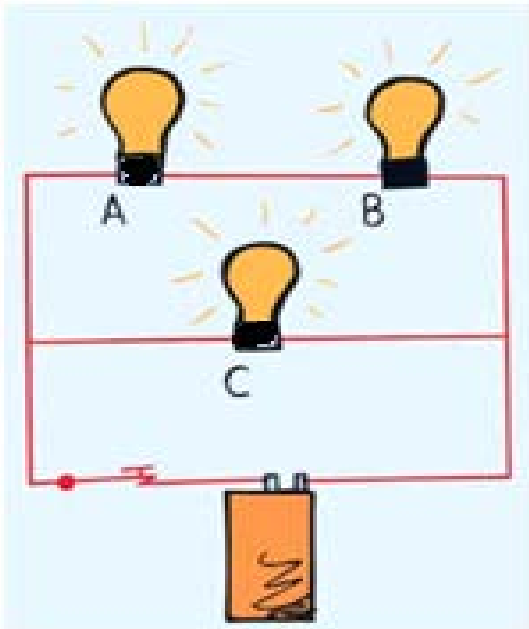
If you unscrew a bulb in a parallel circuit of several light bulbs, what happens to the remaining bulbs?

The remaining bulbs stay equally bright because each bulb has its own path to and from the battery



Question 16B

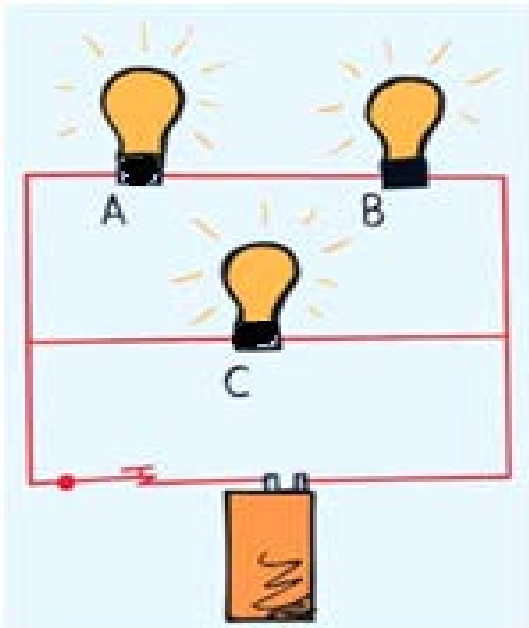
In the diagram below, Which bulb will be the brightest?



“C” Because “A” & “B” have to share the voltage from the battery

Question 16C

In the diagram below, what will happen to the remaining bulbs if bulb "B" is unscrewed?



"A" Will go out

"C" Will stay the same

Question 17

Is your house is wired in parallel or series?

Parallel

How do you know?

If one light or appliance goes out, the rest stay on

Question 18

What changes could you make in order to increase the current in a series circuit?

$$I = \frac{V}{R}$$

Remove a resistor

Add a battery

Question 19

A 20 Ω resistor, a 30 Ω resistor, and a 40 Ω resistor are connected in series to a 120V source.

a. What is the effective (total) resistance?

$$R = R_1 + R_2 + R_3 = 20 + 30 + 40$$

$$R = 90 \Omega$$

b. What is the current in the circuit?

$$I = \frac{V}{R} = \frac{120}{90} \quad I = 1.33 \text{ Amps}$$

Question 20

A 20 Ω resistor, a 30 Ω resistor, and a 40 Ω resistor are connected in parallel to a 120 V source.

a. What is the effective resistance?

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$
$$\frac{1}{R} = \frac{1}{20} + \frac{1}{30} + \frac{1}{40}$$
$$\frac{1}{R} = 0.108$$
$$R = 9.23 \Omega$$

b. What is the current in the circuit?

$$I = \frac{V}{R} = \frac{120}{9.23}$$
$$I = 13 \text{ Amps}$$

Exit Circuits