

Electric Measurements

Read this first:

Most circuits in your house are rated for 15 or 20 amps. Using more than this amount can overload the circuit and cause a fire. A nearby person could also be shocked or electrocuted.

You can determine how many amps a device is using from this simple formula:

$$\text{Watts/Volts}=\text{Amps}$$

Here are some important definitions that might help you:

Amperage (Amps) - the amount of electricity used.

Voltage (Volts) - the force of the electricity used. In most homes, the voltage is 120 volts.

Watts- a measure of the work that electricity does.

Using the information above, complete the chart to determine how many amps each device is using. Check your work in the answer key.

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Device	Watts	Amps Needed
Coffee Maker	900	$900/120=7.5$ Amps
TV	130	
Toaster	1200	
Laptop	220	
Blow Dryer	1875	
Cell Phone Charger	3	

If most circuits can only handle 15 to 20 amps, what might happen if you use too many of these devices at the same time?

How many TVs could you plug in at once before you would overload the circuit? _____

What about blow dryers? _____

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Answer Key:

Using the information above, complete the chart to determine how many amps each device is using.

Device	Watts	Amps Needed
Coffee Maker	900	$900/120=7.5$ Amps
TV	130	$130/120=1.08$ Amps
Toaster	1200	$1200/120=10$ Amps
Laptop	220	$220/120=1.8$ Amps
Blow Dryer	1875	$1875/120=15.6$ Amps
Cell Phone Charger	3	$3/120=0.025$ Amps

If most circuits can only handle 15 to 20 amps, what might happen if you use too many of these devices at the same time?

You could blow a fuse

How many TVs could you plug in at once before you would overload the circuit? About 18.5

What about blow dryers? About 1.3