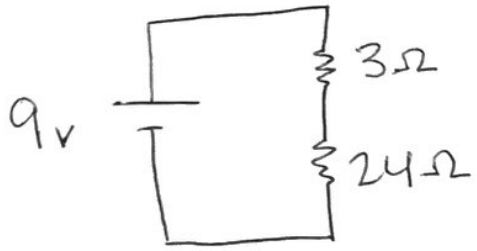
Series circuit: only one pathway

Series → I is current – current is constant in Series.



① Find total resistance:

$R_T = R_1 + R_2 \ldots$

$R_T = 3\Omega + 24\Omega$

$\boxed{R_T = 27\Omega}$

② Find total current:

$V = IR$

$9v = I(27\Omega)$

$\frac{}{27} \qquad \frac{}{27}$

$\frac{1}{3}A = I$

$\boxed{.33A = I}$

③ Find voltage drop at each resistor:

R_1: $V = IR$

$V = (.33)(3\Omega)$

$\boxed{V = 1V}$

R_2: $V = IR$

$V = (.33)(24\Omega)$

$\boxed{V = 8v}$

Parallel:

Voltage remains constant in parallel circuits

at 18Ω → 9V

at 3Ω → 9V

Solve for current: at each resistor:

$I = \frac{V}{R}$ $I = \frac{9V}{18\Omega} = .5A$

+

$I = \frac{V}{R}$ $I = \frac{9V}{3\Omega} = 3A$

Total current 3.5A

2 rules:

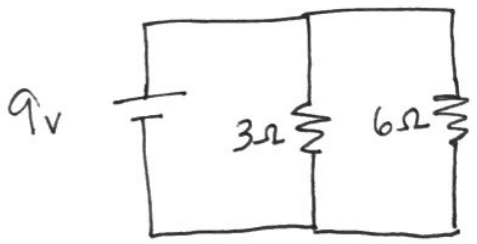
① Juction rule:
Where the Amps meet at a junction → add them together.
Where the amps leave the junction → subtract them.
I in = I out

② in a Loop: Voltage in = Voltage out.

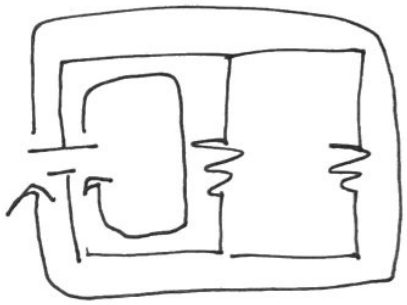
Parallel Circuits: more than one pathway.

Each loop is basically it's own circuit.

Parallel
↓
V - v- is voltage - voltage is constant in parallel



This circuit has multiple pathways.



To find the current in each pathway:

$V = IR$

$\frac{9V}{3} = \frac{I(3\Omega)}{3}$

$3A = I$

$V = IR$

$\frac{9V}{6} = \frac{I(6\Omega)}{6}$

$1.5A = I$

Power: determines how "powerful" object is.
- how bright the lightbulb is
- how strong your hairdryer is
- how fast the fan turns.

$P = IV$

P= power (watts)
I= current (amps)
V= voltage (volts)