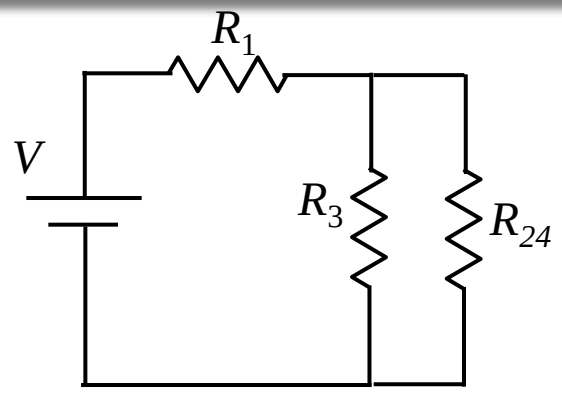
Calculation



In the circuit shown: $V = 18V$,

$R_1 = 1\Omega$, $R_2 = 2\Omega$, $R_3 = 3\Omega$, and $R_4 = 4\Omega$.

What is V_2, the voltage across R_2?

Combine Resistances:

R_2 and R_4 are connected in series $= R_{24}$

R_3 and R_{24} are connected in parallel $= R_{234}$

What is the value of R_{234}?

A) $R_{234} = 1\ \Omega$ B) $R_{234} = 2\ \Omega$ C) $R_{234} = 4\ \Omega$ D) $R_{234} = 6\ \Omega$

R_2 and R_4 in series → $R_{24} = R_2 + R_4 = 2\Omega + 4\Omega = 6\Omega$

$(1/R_{parallel}) = (1/R_a) + (1/R_b)$ → $1/R_{234} = (1/3) + (1/6) = (3/6)\ \Omega^{-1}$ → $R_{234} = 2\ \Omega$