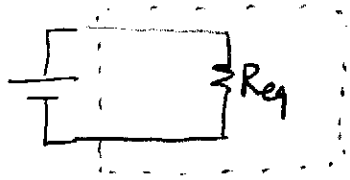
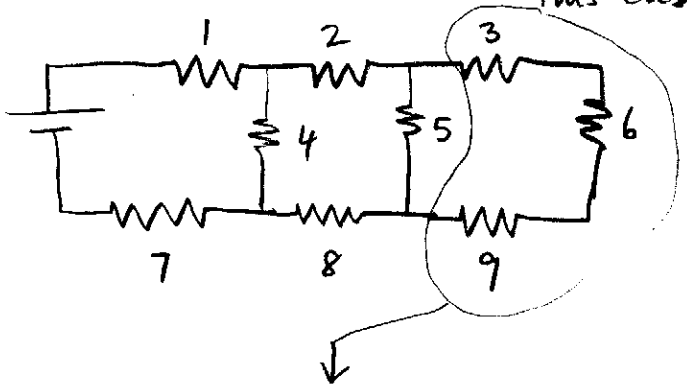
In this circuit, each resistor has resistance 1 Ω. The battery has voltage 1 volt. What current flows through the battery?

$V = I R_{eq}$

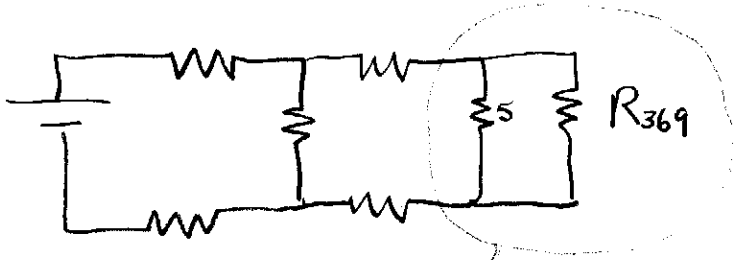


Treat resistor network as equivalent resistor

'Breaking down' the network will work in this case



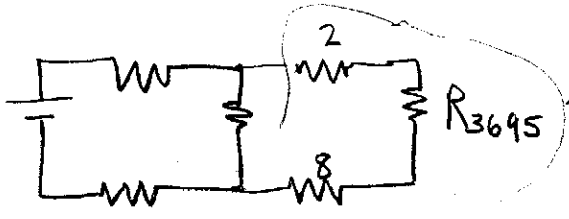
These are 3 resistors in series. Find R_{eq} for these first, $R_{369} = 3R$



These 2 are in parallel (same potential drop across them)

$$R_{3695} = \frac{R_{369} R_5}{R_{369} + R_5} = \frac{3R \cdot R}{3R + R} = \frac{3}{4} R$$

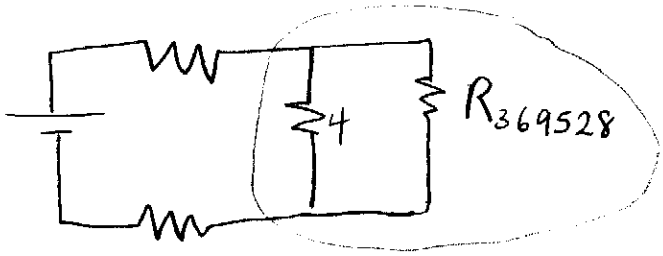
Network becomes:



now these 3 are in series

$R_{369528} = 2R + \frac{3}{4}R = \frac{11}{4}R$

Network becomes:

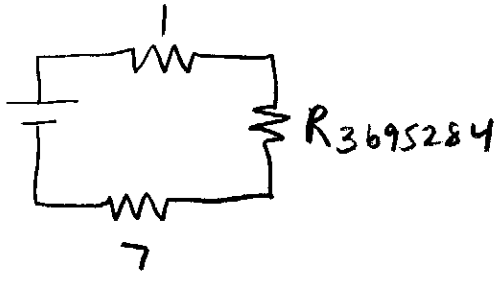


These are in parallel

$$R_{3695284} = \frac{R_4 R_{369528}}{R_4 + R_{369528}} = \frac{R \cdot \frac{11}{4} R}{R + \frac{11}{4} R}$$

$$= \frac{11/4\, R}{15/4\, R} = \frac{11}{15} R$$

Network becomes:



This is 3 in series

$$R_{eq} = 2R + R_{3695284} = \left(2 + \frac{11}{15}\right) R$$

$$R_{eq} = \frac{41}{15} R = \underline{\underline{\frac{41}{15}\,\Omega}}$$

So the current is $I = \frac{V}{R_{eq}} = \frac{1}{\frac{41}{15}} = \underline{\underline{\frac{15}{41}\,A}}$