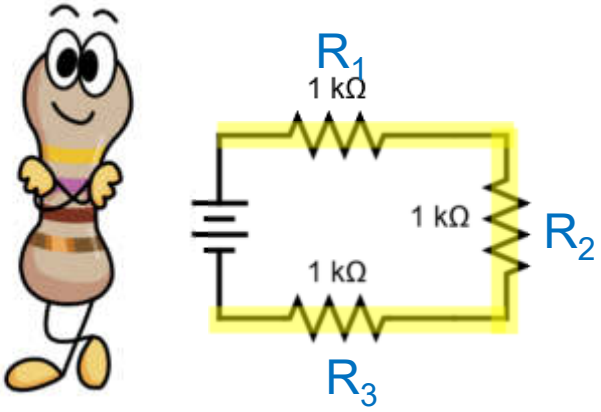
Let's Figure Out the Total Resistance in the Circuits!

Find the total resistance for both **Circuit 1** and **Circuit 2**.

To find the *total resistance* (R_T) in **Circuit 1**, let's find the resistance through R_1 , R_2 and R_3 which are in **series**.

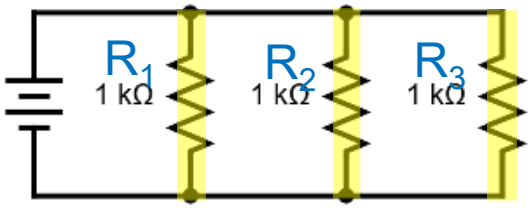


$$R_T = R_1 + R_2 + R_3$$

$$R_T = 1000 + 1000 + 1000$$

$$R_T = 3000\Omega \text{ or } 3K\Omega$$

To find the *total resistance* (R_T) in **Circuit 2**, let's find the resistance through R_1 , R_2 and R_3 which are in **parallel**.



$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$\frac{1}{R_T} = \frac{1}{1000} + \frac{1}{1000} + \frac{1}{1000}$$

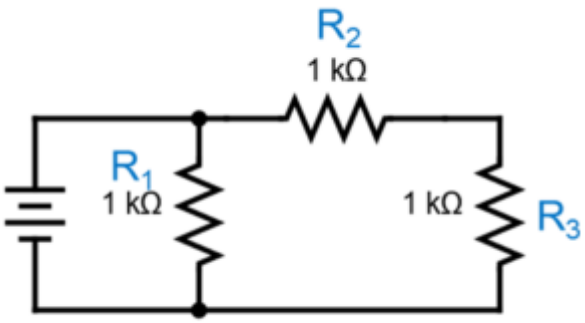
$$\frac{1}{R_T} = \frac{3}{1000}$$

$$\frac{1}{R_T} \approx \frac{1}{333.3}$$

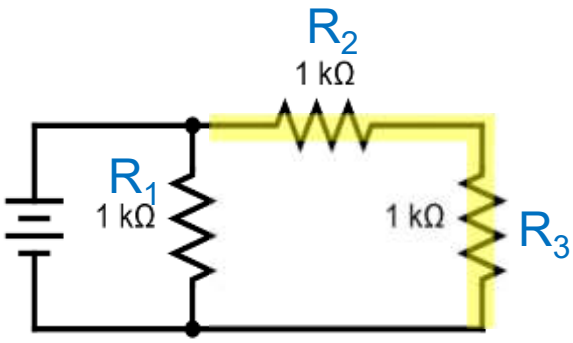
$$R_T \approx 333.3\Omega$$

Let's Figure Out the Total Resistance in the Circuits!

Find the total resistance for **Circuit 3** below.



To find the *total resistance* (R_T) in **Circuit 3**, let's start by finding the resistance through R_2 and R_3 which are in **series**.

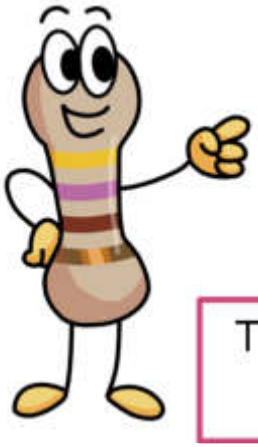


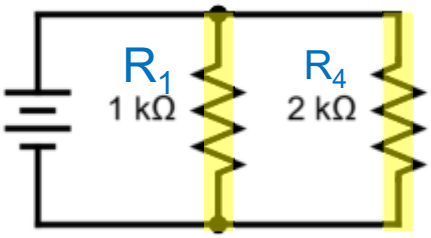
$= R_2 + R_3$

$= 1000 + 1000$

$= 2000\Omega$ or $2K\Omega$

Now let's find the resistance between R_2 and R_4 which are in parallel.





$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_4}$$

$$\frac{1}{R_T} = \frac{1}{1000} + \frac{1}{2000}$$

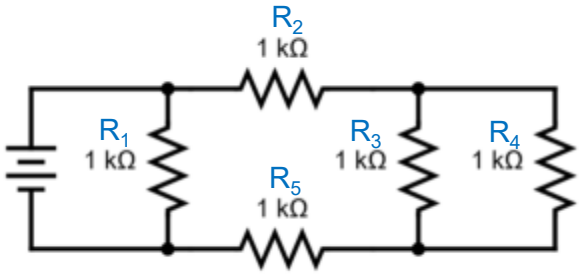
$$\frac{1}{R_T} = \frac{3000}{2{,}000{,}000} \approx \frac{1}{666.7}$$

$R_T \approx 666.7\Omega$

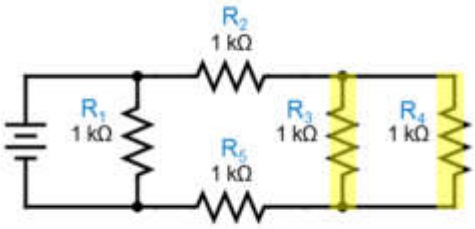
The total resistance for **Circuit 3** is approximately 666.7Ω!

Let's Figure Out the Total Resistance in the Circuits!

Find the total resistance for **Circuit 4** below.



To find the *total resistance* (R_T) in **Circuit 4**, let's start by finding the resistance through R_2 and R_4 which are in **parallel**.



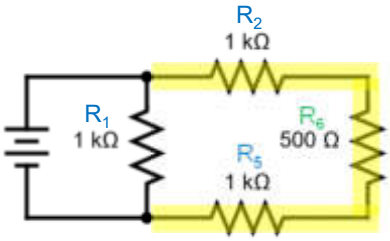
$$\frac{1}{R} = \frac{1}{R_3} + \frac{1}{R_4}$$

$$\frac{1}{R} = \frac{1}{1000} + \frac{1}{1000}$$

$$\frac{1}{R} = \frac{2}{1000} = \frac{1}{500}$$

R = 500Ω R_5 = **500Ω**

Now let's find the resistance between R_2, R_6 and R_5 which are in **series**.



$R = R_2 + R_6 + R_5$

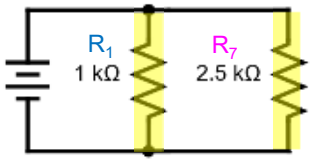
$R = 1000 + 500 + 1000$

R= 2500Ω or 2.5KΩ

R_7 = **2500Ω**

Now let's find the resistance between R_1 and R_7 which are in **parallel**.

The total resistance for **Circuit 4** is approximately 714.3Ω!



$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_7}$$

$$\frac{1}{R_T} = \frac{1}{1000} + \frac{1}{2500}$$

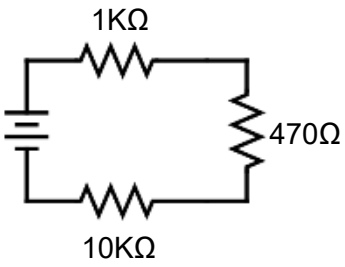
$$\frac{1}{R_T} = \frac{3500}{2,500,000} \approx \frac{1}{714.3}$$

R_T = **714.3Ω**

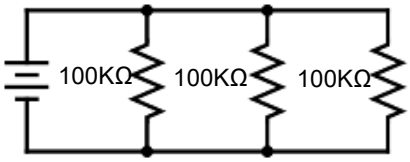
Let's Figure Out the Total Resistance in the Circuits!

SHOW ALL YOUR WORK!

CIRCUIT 1



CIRCUIT 2



CIRCUIT 3