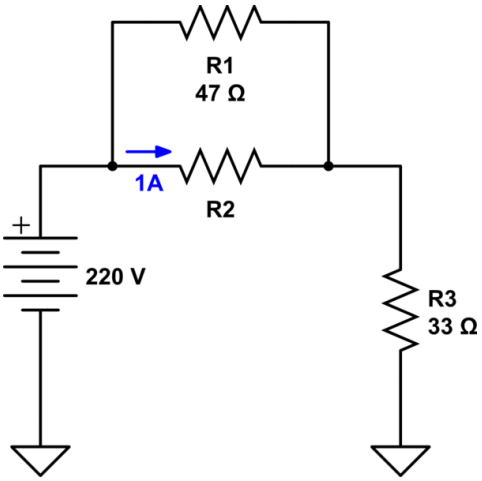
**Answer on Question #43090-Physics-Electric Circuits**

VT = 220V R1 AND R2 is parallel connected to a series R3 R1=47ohms, R3=33ohms Ir2=1A

Find current total, r2 and ir1

**Solution**




$I_{total}$ is delivered by 220V source through 33ohm resistor R3 and into the parallel combination of R2 and 47ohm resistor R1. The current through R2 is 1Amp. Now three equations can be written for the above mentioned circuit and they are as follows:

$$I_{total} = 1 + I_1,$$

$$\frac{220}{33 + \left(\frac{47 \cdot R2}{47 + R2}\right)} = I_{total}$$

and

$$47(I_1) = 1 \cdot R2 = 220 - 33(I_{total}).$$

Therefore,

$$220 = \left(33 + \left(\frac{47 \cdot R2}{47 + R2}\right)\right)(1 + I_1)$$

and

$$47(I_{total}) - 47 = 220 - 33(I_{total}) \; or \; 80(I_{total}) = 267.$$

Thus, $(I_{total}) = 3.34 \; Amps$ and $I_1 = 2.34 \; Amps$. Also $R2 = 110 ohms$.