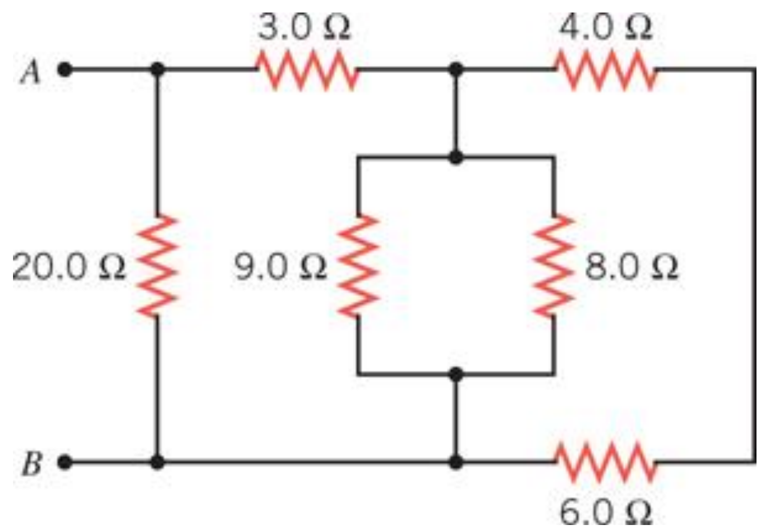
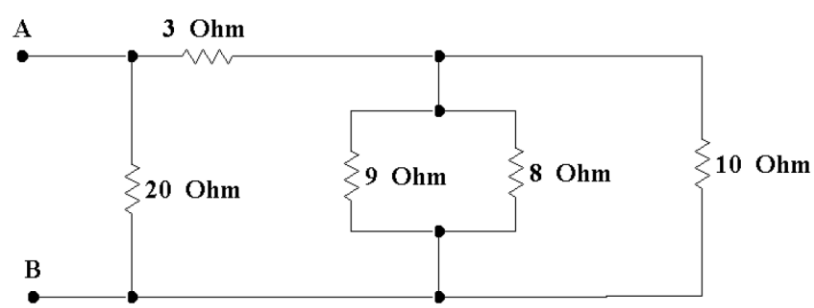
28. Determine the equivalent resistance between the points *A* and *B* for the group of resistors in the drawing.



So start as far away from AB as you can and you have the 4 Ω in series with the 6 Ω

$$R_{eff1} = R_4 + R_6 = 4.00\ \Omega + 6.00\ \Omega = 10.00\ \Omega$$

Now redraw circuit

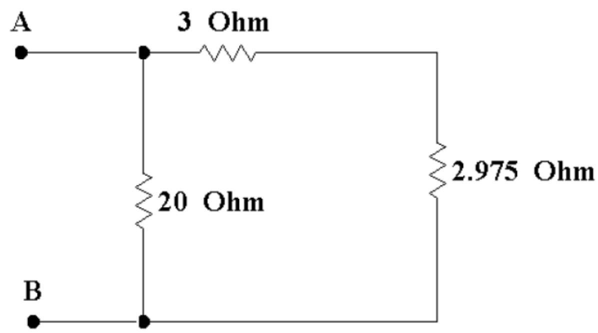


At this point we have the 9 Ω, the 8 Ω, and the 10 Ω are all in parallel so we can find the effective resistance of these three.

$$\frac{1}{R_{eff2}} = \frac{1}{R_9} + \frac{1}{R_8} + \frac{1}{R_{10}} = \frac{1}{9.00\Omega} + \frac{1}{8.00\ \Omega} + \frac{1}{10.00\ \Omega} = 0.33611\ \Omega^{-1}$$

$$R_{eff2} = \frac{1}{0.33611\ \Omega^{-1}} = 2.975\ \Omega$$

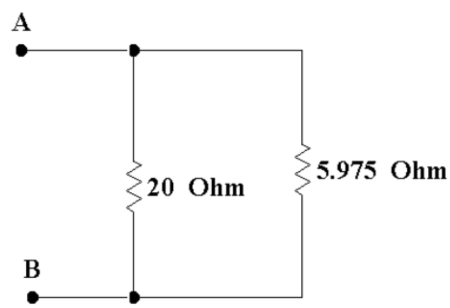
So redrawing circuit yields



The 3 Ω and the 2.975 Ω are in series so we can replace them with the effective resistance

$$R_{eff2} = R_3 + R_{2.975} = 3.00\ \Omega + 2.975\ \Omega = 5.975\ \Omega$$

And our last circuit is



So we have the 20 Ω resistor in parallel with the 5.975 Ω resistor and so the total resistance between A and B is found from

$$\frac{1}{R_{AB}} = \frac{1}{R_{20}} + \frac{1}{R_{5.975}} = \frac{1}{20.00\Omega} + \frac{1}{5.975\ \Omega} = 0.21736\ \Omega^{-1}$$

$$R_{AB} = \frac{1}{0.21736\ \Omega^{-1}} = 4.601\ \Omega$$

$$\boxed{R_{AB} = 4.6\ \Omega}$$