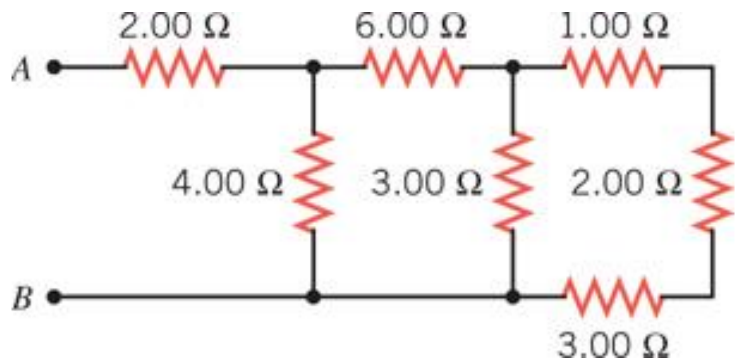
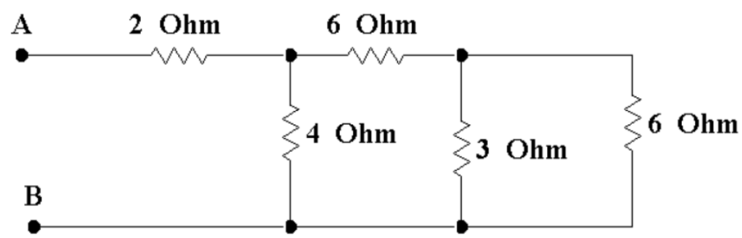
27. Find the equivalent resistance between points *A* and *B* in the drawing.



Always start away from where you are trying to find the resistance between. So we begin by combining the 1Ω, 2Ω, and 3Ω in series.

$$R_{eff1} = R_1 + R_2 + R_3 = 1.00\ \Omega + 2.00\ \Omega + 3.00\ \Omega = 6.00\ \Omega$$

Our circuit becomes

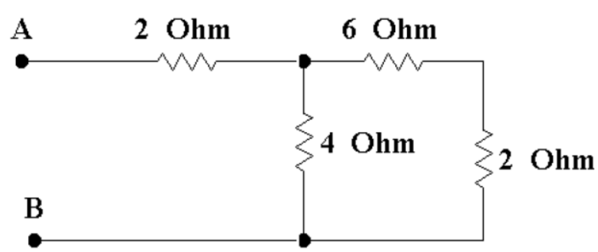


Now we combine 3Ω and 6Ω as parallel resistors

$$\frac{1}{R_{eff2}} = \frac{1}{R_3} + \frac{1}{R_6} = \frac{1}{3.00\Omega} + \frac{1}{6.00\ \Omega} = \frac{2+1}{6.00\ \Omega} = \frac{3}{6.00\ \Omega} = \frac{1}{2.00\ \Omega}$$

$$R_{eff2} = 2.00\ \Omega$$

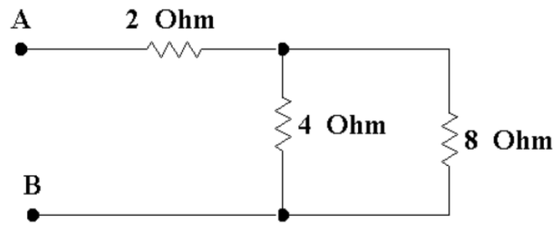
Our circuit now looks like



Now combine the 6Ω and the 2Ω in series

$$R_{eff3} = R_6 + R_2 = 6.00\ \Omega + 2.00\ \Omega = 8.00\ \Omega$$

Redraw our circuit

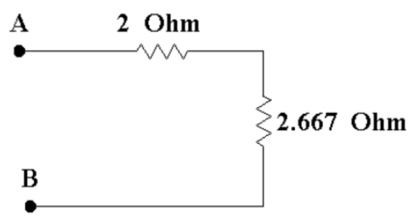


Now add 4Ω and 8Ω in parallel

$$\frac{1}{R_{eff3}} = \frac{1}{R_4} + \frac{1}{R_8} = \frac{1}{4.00\Omega} + \frac{1}{8.00\ \Omega} = \frac{2+1}{8.00\ \Omega} = \frac{3}{8.00\ \Omega} = 0.375\ \Omega^{-1}$$

$$R_{eff4} = \frac{1}{0.375\ \Omega^{-1}} = 2.6667\ \Omega$$

Next circuit looks like



So finally have two resistors in series so total resistance is

$$R_{total\ AB} = R_2 + R_{2.667} = 2.00\ \Omega + 2.667\ \Omega = 4.667\ \Omega$$

$$\boxed{R_{total\ AB} = 4.67\ \Omega}$$