Visualize: The three resistors in Figure Ex31.28 are equivalent to a resistor of resistance $R_{eq}$.

Solve: Because the three resistors are in parallel,

$$\frac{1}{R_{eq}} = \frac{1}{R} + \frac{1}{200 \, \Omega} + \frac{2}{200 \, \Omega} = \frac{400 \, \Omega + R}{(200 \, \Omega)R} \Rightarrow R_{eq} = \frac{(200 \, \Omega)R}{(400 \, \Omega + R)} = \frac{200 \, \Omega}{1 + \left(\frac{400 \, \Omega}{R}\right)}$$

From this equation, we see that (i) $R_{eq} = 0 \, \Omega$ if $R = 0 \, \Omega$ and (ii) $R_{eq} = 200 \, \Omega$ if $R \to \infty$. Thus, $R_{eq} < 200 \, \Omega$ for $R < \infty$. 