Find the current of $i_1$ on the following circuit.

Solution:

Everything is in parallel

\[ G_T = \frac{1}{4.5\,k} + \frac{1}{9\,k} + \frac{1}{3\,k} \]

\[ G_T = \frac{6}{9k}\,s \]

\[ R_T = \frac{1}{G_T} = \frac{9\,k}{6} = 1.5\,k\Omega \]

\[ I(R_T) = (8mA)(1.5k\Omega) = 12\,V \]

\[ I_1 = \frac{12\,V}{4.5\,k\Omega} = 2.66\,mA \]