

88. (a) The capacitor is *initially* uncharged, which implies (by the loop rule) that there is zero voltage (at $t = 0$) across the $10\text{ k}\Omega$ resistor, and that 30 V is across the $20\text{ k}\Omega$ resistor. Therefore, by Ohm's law, $i_{10} = 0$,
- (b) and $i_{20} = (30\text{ V})/(20\text{ k}\Omega) = 1.5 \times 10^{-3}\text{ A}$.
- (c) As $t \rightarrow \infty$ the current to the capacitor reduces to zero and the $20\text{ k}\Omega$ and $10\text{ k}\Omega$ resistors behave more like a series pair (having the same current), equivalent to $30\text{ k}\Omega$. The current through them, then, at long times, is $i = (30\text{ V})/(30\text{ k}\Omega) = 1.0 \times 10^{-3}\text{ A}$.