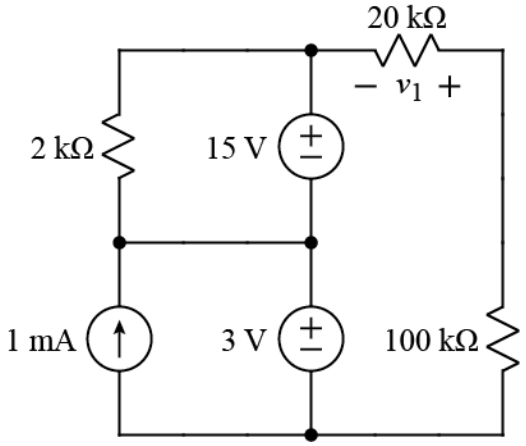
HOMEWORK #4 prob 1 solution

EX:



Calculate i_1.

SOL'N: If we consider the voltage-loop on the right side, we have a voltage divider, but with a minus sign because of the polarity of the v_1 measurement.

$$v_1 = -(15\,\text{V} + 3\,\text{V})\frac{20\,\text{k}\Omega}{20\,\text{k}\Omega + 100\,\text{k}\Omega} = -18\,\text{V}\cdot\frac{1}{6} = -3\,\text{V}$$