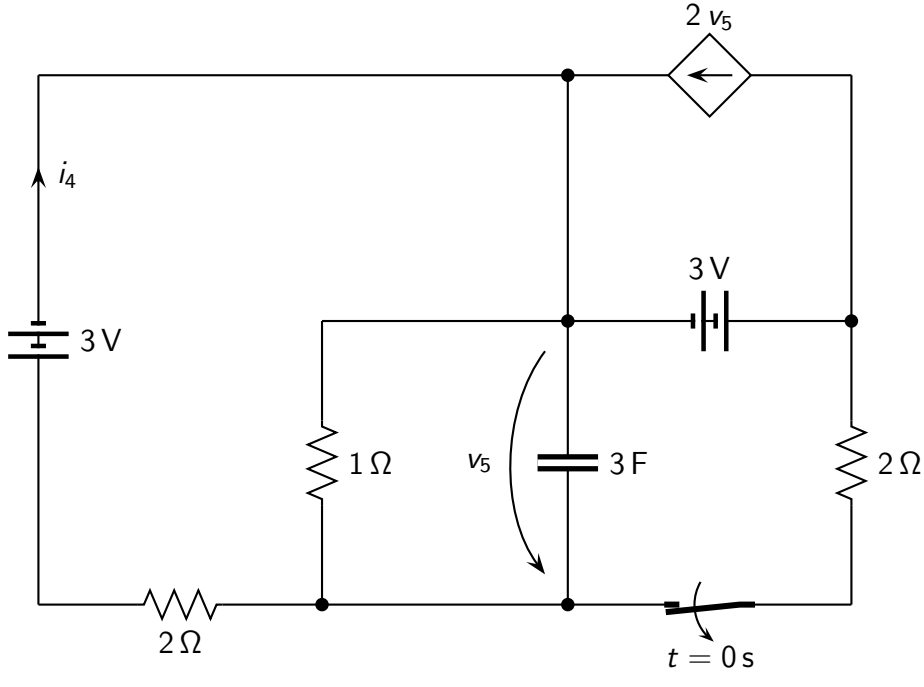
Problem: find the expression of $i_4(t)$, $v_5(t)$ for $t > 0$.



Solution

- Time constant: $\tau = 2\,\text{s}$;
- Initial conditions before switching: $v_5(0^-) = \frac{3}{2}\,\text{V}$;
- Initial conditions after switching: $i_4(0^+) = \frac{-3}{4}\,\text{A}$; $v_5(0^+) = \frac{3}{2}\,\text{V}$;
- Steady-state solution: $i_4(\infty) = -1\,\text{A}$; $v_5(\infty) = 1\,\text{V}$;
- Solution for $t > 0$:

$$i_4(t) = \left(\frac{1}{4}\,e^{-t/\tau} - 1\right)\,\text{A}$$

$$v_5(t) = \left(\frac{1}{2}\,e^{-t/\tau} + 1\right)\,\text{V}$$