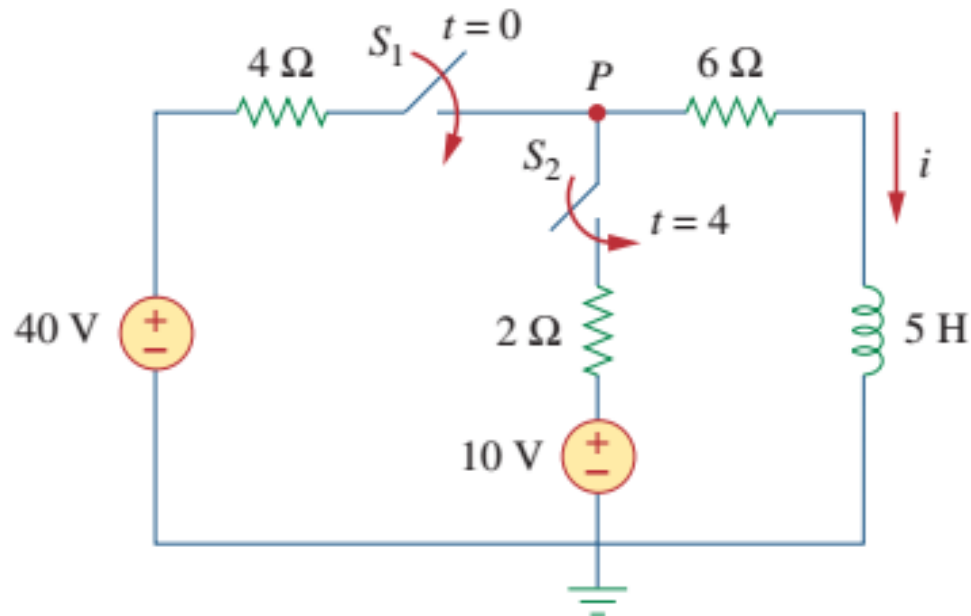


Sequential switch

At $t = 0$, switch 1 in Fig. 7.53 is closed, and switch 2 is closed 4 s later. Find $i(t)$ for $t > 0$. Calculate i for $t = 2$ s and $t = 5$ s.



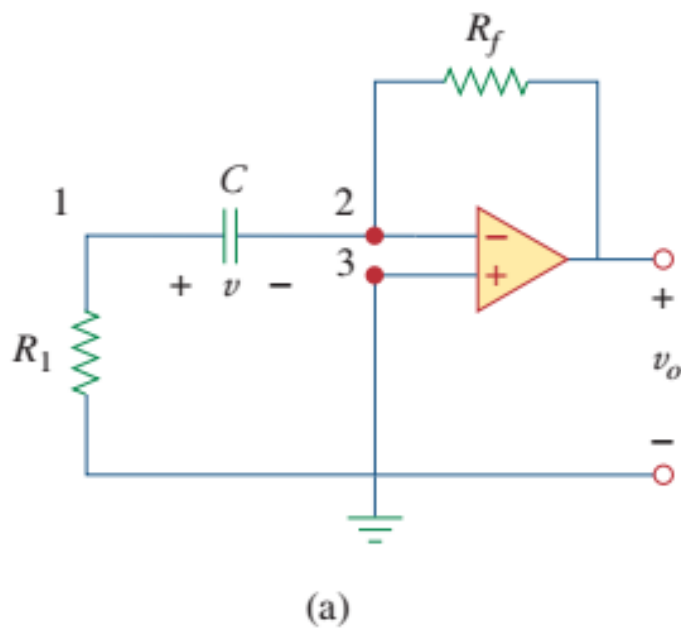
We need to consider the three time intervals $t \leq 0$, $0 \leq t \leq 4$, and $t \geq 4$ separately. For $t < 0$, switches S_1 and S_2 are open so that $i = 0$. Since the inductor current cannot change instantly,

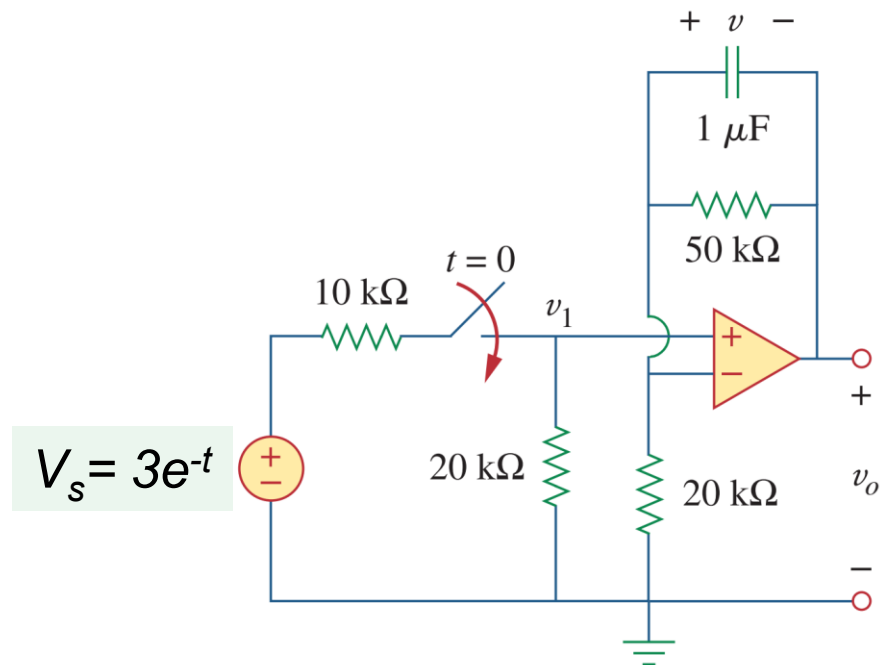
$$i(0^-) = i(0) = i(0^+) = 0$$

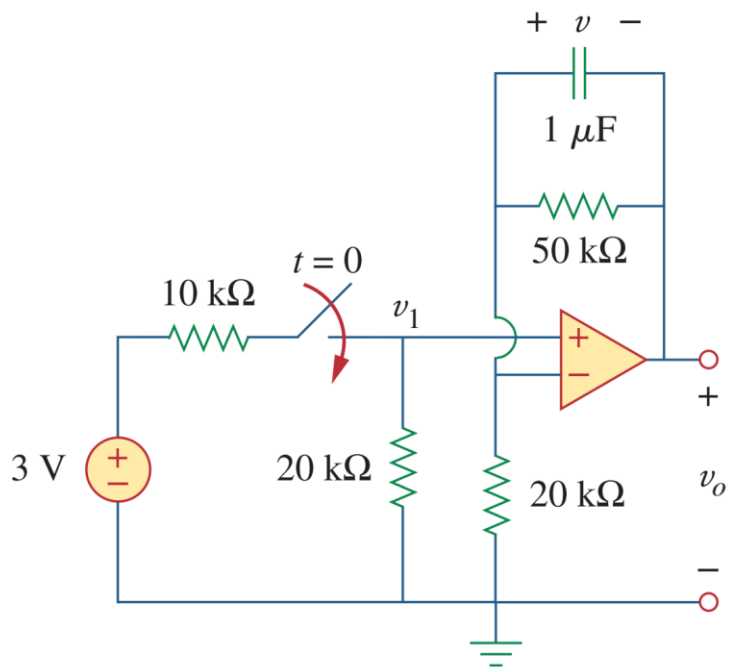


First order op-amp circuit

For the op amp circuit in Fig. 7.55(a), find v_o for $t > 0$, given that $v(0) = 3 \text{ V}$. Let $R_f = 80 \text{ k}\Omega$, $R_1 = 20 \text{ k}\Omega$, and $C = 5 \mu\text{F}$.

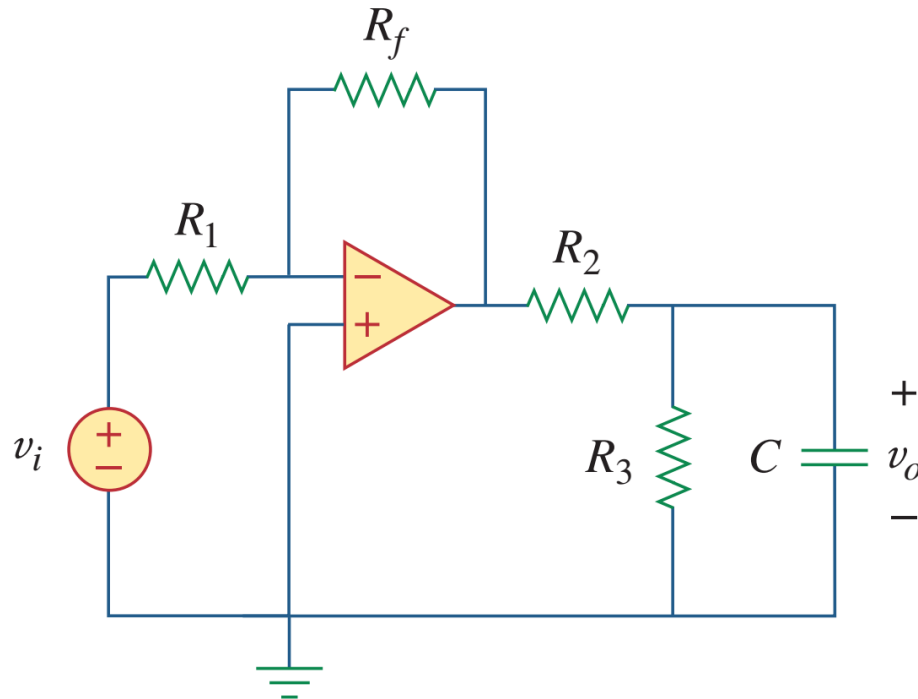








Find the step response $v_o(t)$ for $t > 0$ in the op amp circuit of Fig. 7.59. Let $v_i = 2u(t)$ V, $R_1 = 20 \text{ k}\Omega$, $R_f = 50 \text{ k}\Omega$, $R_2 = R_3 = 10 \text{ k}\Omega$, $C = 2 \text{ }\mu\text{F}$.





Practice

