14.25 Use Thévenin's theorem to find $v_o(t)$, $t > 0$, in the network shown in Fig. P14.25. **PSV**

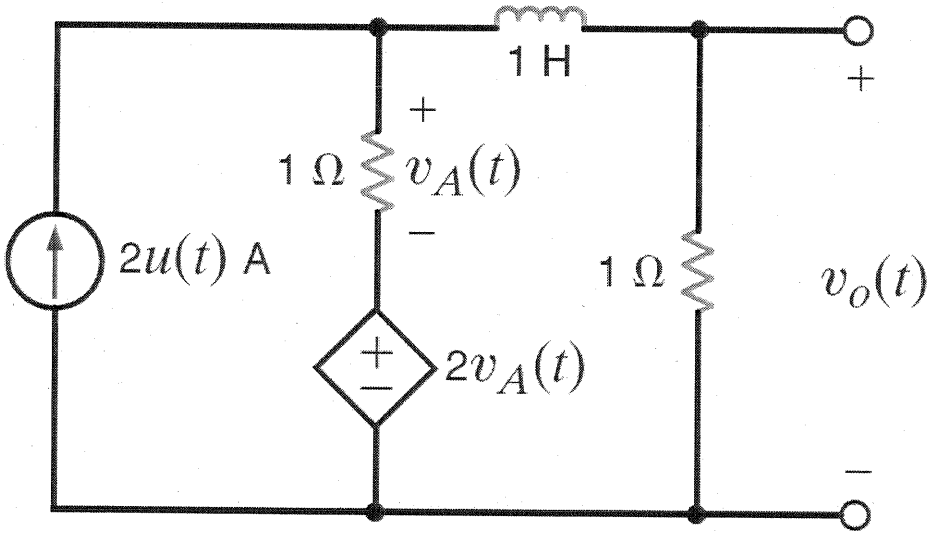
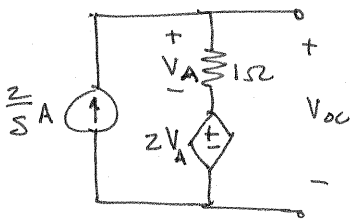


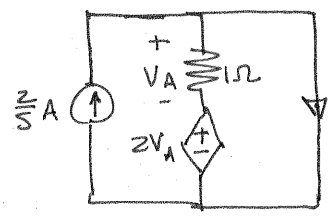
Figure P14.25

SOLUTION:



$V_{oc} = 3V_A$ & $V_A = (1)(2/s)$

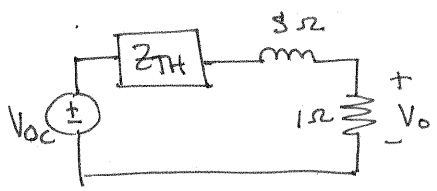
$V_{oc} = 6/s$



$I_{sc} = \frac{2}{s}$

$Z_{TH} = V_{oc}/I_{sc}$

$Z_{TH} = 3\,\Omega$



$$V_o = \frac{V_{oc}(1)}{s+1+Z_{TH}} = \frac{6}{s(s+4)} = \frac{3/2}{s} - \frac{3/2}{s+4}$$

$$v_o(t) = [1.5(1-e^{-4t})]u(t)\ V$$