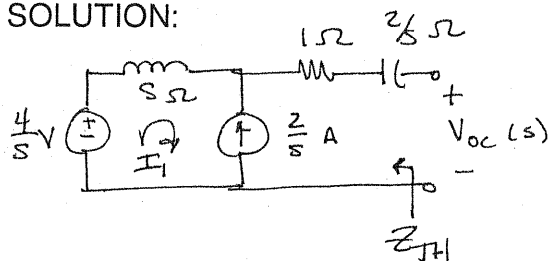


14.19 Use Thévenin's theorem to solve Problem 14.17.

CS

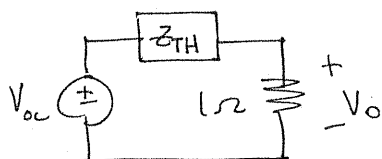
SOLUTION:



$$\frac{4}{s} = s I_1 + V_{OC} \quad I_1 = -\frac{2}{s}$$

$$V_{OC} = \frac{4}{s} + 2 = \frac{2s+4}{s}$$

$$Z_{TH} = s + 1 + \frac{2}{s} = \frac{s^2 + s + 2}{s}$$



$$V_O = V_{OC} \left[\frac{1}{1 + Z_{TH}} \right] = \frac{2(s+2)}{s^2 + 2s + 2}$$

$$V_O = \frac{K_1}{s+1-j1} + \frac{K_1^*}{s+1+j1} \quad K_1 = \sqrt{2} \angle -45^\circ$$

$$v_O(t) = [2\sqrt{2} e^{-t} \cos(t - 45^\circ)] u(t) \quad V$$