



Lecture 14

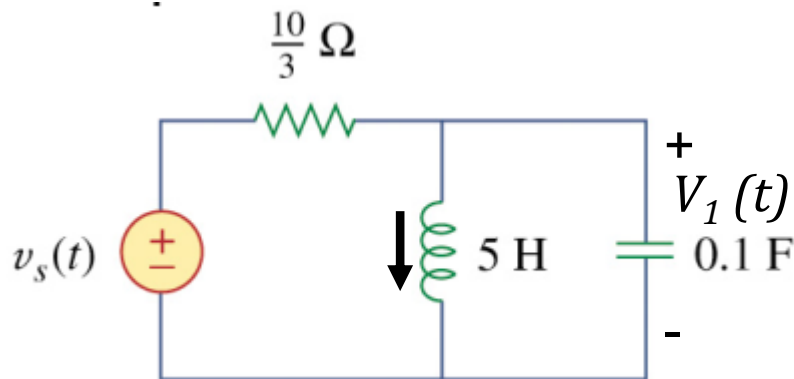
-- Laplace Transform in Circuit Analysis

Example 2

Find (1) the voltage across the capacitor

(2) current through the inductor

assuming that $v_s(t) = 10u(t)$ V, and assume that at $t = 0$, -1 A flows through the inductor and +5 V is across the capacitor.

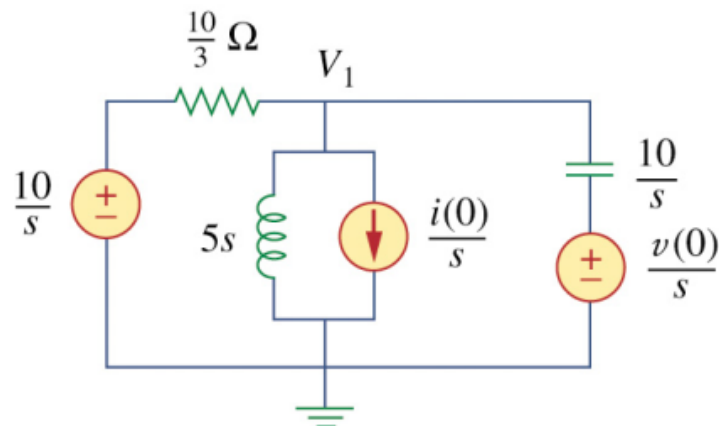
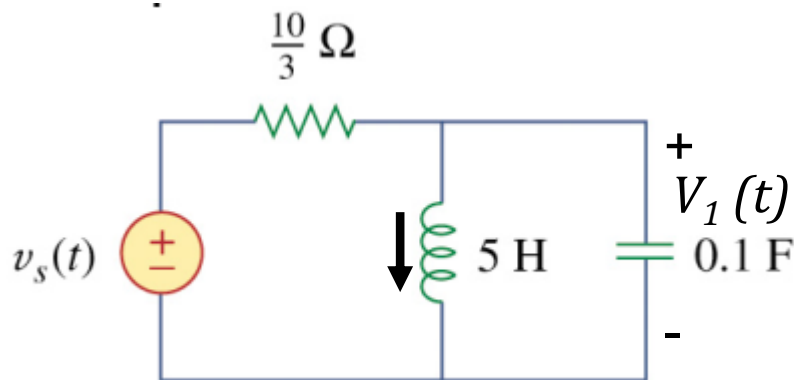


Example 2

Find (1) the voltage across the capacitor

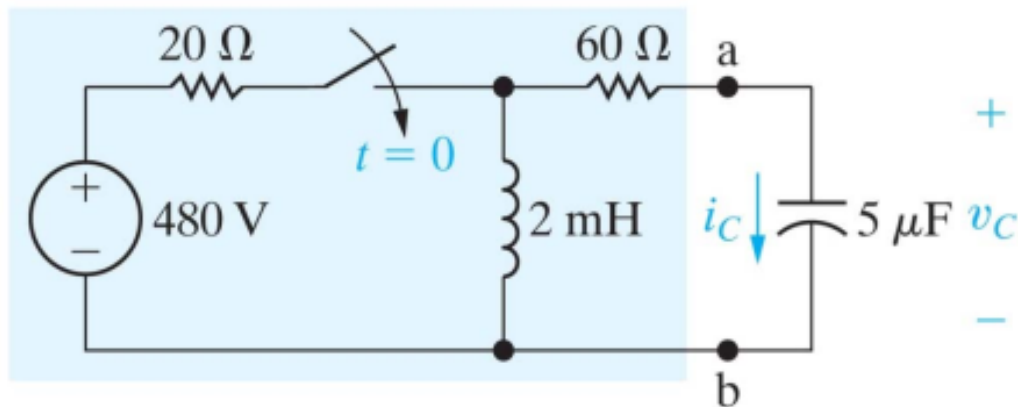
(2) current through the inductor

assuming that $v_s(t) = 10u(t)$ V, and assume that at $t = 0$, **-1 A** flows through the inductor and +5 V is across the capacitor.



Example 3

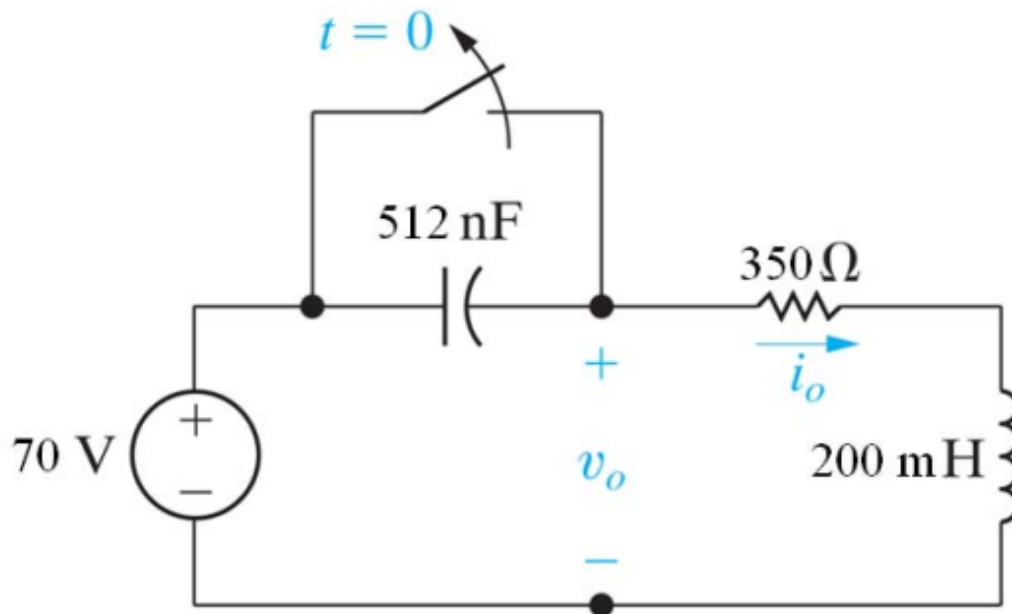
- Use Thevenin's equivalent circuit w.r.t. terminals a - b to find current $i_C(t)$ for $t > 0$.





Example 4

- Find $v_o(t)$ for $t > 0$

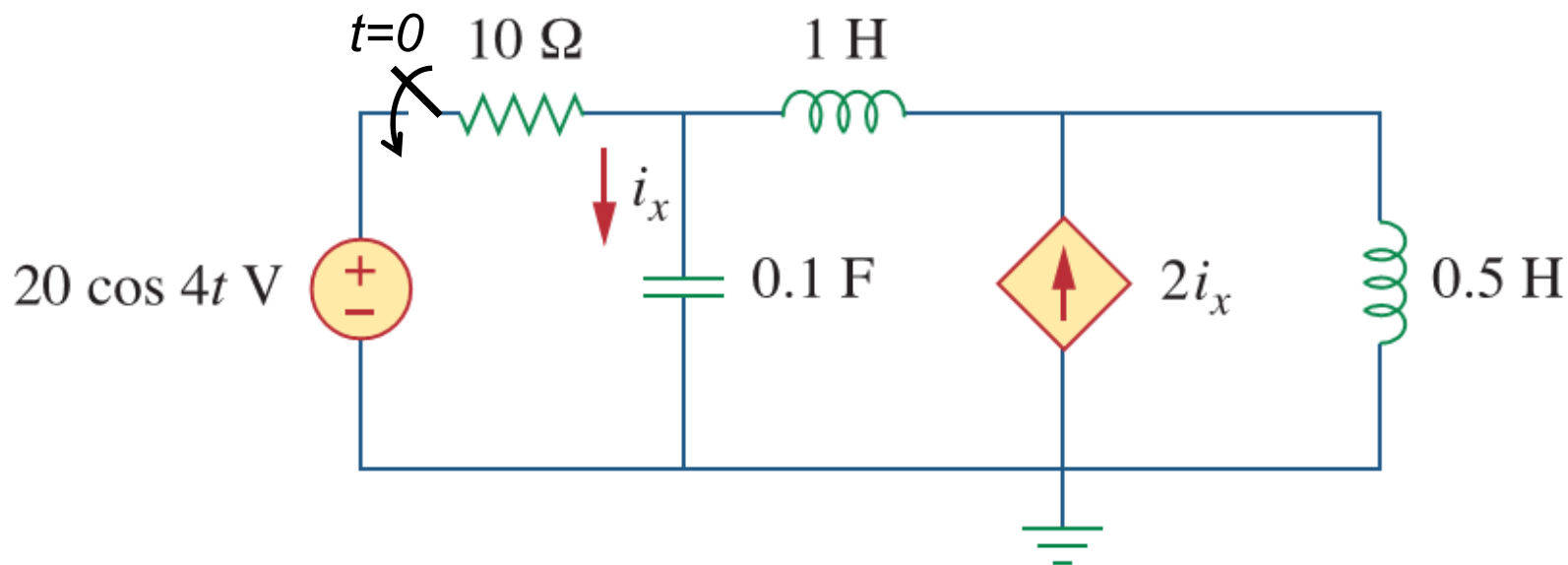


Example 5

- Example---Find i_x (S.S.) assuming no initial energy stored

Using (1) phasor method

(2) Laplace transform method





Example 6

- There is no initial energy stored in this circuit. Find $i(t)$ if
- $v(t) = e^{-0.6t} \sin 0.8t$ V.