H10.1 Work Problem 5.8 in K&I.

H10.2 Work Problem 5.16 in K&I.

H10.3 Determine the frequency of the source at which the magnitude of the voltage across $R_L$ is one-half the value it has when the source is dc ($\omega = 0$).

\[ 10\cos(\omega t) V \]

$R_S = 10 \Omega$

$5\text{mH}$

$R_L = 10 \Omega$

$\nu_L(t)$

H10.4 For the circuit shown below,

(a) Find the Thévenin equivalent of the circuit in the box.

(b) Use (a) to find $i(t)$.

\[ 3\cos(3t+50^\circ) V \]

$1\Omega$

$1/3 \text{F}$

$1/3 \text{H}$

$2\text{H}$

$i(t)$

H10.5 For the circuit below, find

(a) The Thévenin equivalent of the circuit in the box.

(b) The value of the load resistance $R_L$ such that maximum power will be delivered to the load.

(c) The value of the power delivered to the load in part (b).

\[ 6\text{V} \]

$4\Omega$

$2\Omega$

$2\text{A}$

$R_L$

Continued on next page.
H10.6 If $v_s = 120 \cos(\omega t)$, find the average power delivered to each resistor in the circuit below. Assume the transformers are ideal.