14.15 Construct the Bode magnitude and phase plots for

$$H(s) = \frac{2(s + 1)}{(s + 2)(s + 10)}, \qquad s = j\omega$$

14.22 Find the transfer function $\mathbf{H}(\omega)$ with the Bode magnitude plot shown in Fig. 14.74.

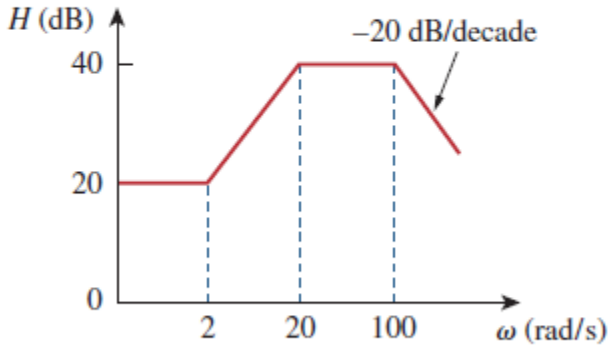


Figure 14.74
For Prob. 14.22.

14.25 A series *RLC* network has $R = 2\ \text{k}\Omega$, $L = 40\ \text{mH}$, and $C = 1\ \mu\text{F}$. Calculate the impedance at resonance and at one-fourth, one-half, twice, and four times the resonant frequency.

14.28 Design a series *RLC* circuit with $B = 20$ rad/s and $\omega_0 = 1{,}000$ rad/s. Find the circuit's Q. Let $R = 10\ \Omega$.

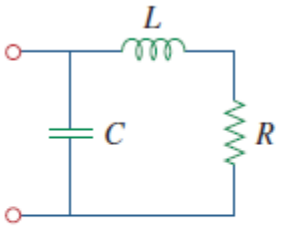
14.35 A parallel *RLC* circuit has $R = 5\ \text{k}\Omega$, $L = 8\ \text{mH}$, and $C = 60\ \mu\text{F}$. Determine:

(a) the resonant frequency

(b) the bandwidth

(c) the quality factor

14.43 Calculate the resonant frequency of each of the circuits in Fig. 14.82.



(a)

Figure 14.82
For Prob. 14.43.

14.53 Design a series *RLC* type bandpass filter with cutoff frequencies of 10 kHz and 11 kHz. Assuming $C = 80$ pF, find R, L, and Q.

14.64 Obtain the transfer function of the active filter in Fig. 14.91 on the next page. What kind of filter is it?

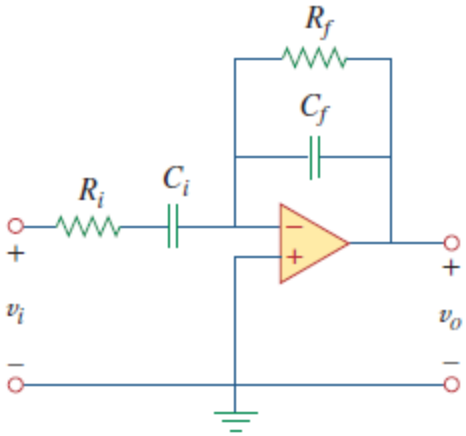


Figure 14.91
For Prob. 14.64.