

- 10.35** $0.1 + 0.217 \cos(2000t + 134.1^\circ) - 1.365 \sin(4000t + 14.21^\circ)$ A
- 10.37** $3.615 \cos(10^5 t - 40.6^\circ)$ V
- 10.39** $5.238 \angle 17.35^\circ$ A
- 10.41** (a) $Z_N = Z_{Th} = 22.63 \angle -63.43^\circ \Omega$, $V_{Th} = -50 \angle 30^\circ$ V,
 $I_N = 2.236 \angle 273.4^\circ$ A, (b) $Z_N = Z_{Th} = 10 \angle 26^\circ \Omega$,
 $V_{Th} = 33.92 \angle 58^\circ$ V, $I_N = 3.392 \angle 32^\circ$ A
- 10.43** $Z_N = Z_{Th} = 21.633 \angle -33.7^\circ \Omega$, $V_{Th} = 107.3 \angle 146.56^\circ$ V,
 $I_N = 4.961 \angle -179.7^\circ$ A
- 10.45** $15.73 \cos(t + 247.9^\circ)$ V
- 10.47** $3.855 \cos(4t - 35.02^\circ)$ V
- 10.49** 1 k Ω , $5.657 \cos(200t + 75^\circ)$ A
- 10.51** $0.542 \cos(2t - 77.47^\circ)$ A
- 10.53** $-j\omega RC$, $-V_m \cos \omega t$
- 10.55** $35.76 \cos(10^4 t - 26.56^\circ)$ μ A
- 10.57** $\frac{C_1}{C_2} \left(\frac{1 + j\omega R_2 C_2}{1 + j\omega R_1 C_1} \right)$, $\frac{C_1}{C_2}$, $\frac{R_2}{R_1}$, $\frac{C_1}{C_2} \left(\frac{1 + jR_2 C_2 / R_1 C_1}{1 + j} \right)$,
 $\frac{C_1}{C_2} \left(\frac{1 + j}{1 + jR_1 C_1 / R_2 C_2} \right)$
- 10.59** $\frac{R_2 + R_3 + j\omega C_2 R_2 R_3}{(1 + j\omega R_1 C_1)(R_3 + j\omega C_2 R_2 R_3)}$
- 10.61** $35.78 \cos(1000t + 26.56^\circ)$ V
- 10.63** $1.465 \angle 79.59^\circ$ A
- 10.65** $1.664 \angle -146.4^\circ$ V
- 10.67** $15.91 \angle 169.6^\circ$, $5.172 \angle -138.6^\circ$, $2.27 \angle -152.4^\circ$ V
- 10.69** Proof
- 10.71** (a) 180 kHz, (b) 40 k Ω
- 10.73** Proof
- 10.75** Proof

Chapter 11

- 11.1** $800 + 1600 \cos(100t + 60^\circ)$, 800 W
- 11.3** 7.5 W, 5 W, 0 W, 2.5 W, 0 W
- 11.5** 12.48 W
- 11.7** 43.78 W
- 11.9** 0 W
- 11.11** (a) $0.471 + j1.882 \Omega$, 15.99 W, (b) $2.5 - j1.167 \Omega$, 1.389 W
- 11.13** $0.5 - j0.5 \Omega$, 90 W
- 11.15** $21.23 - j10.15 \Omega$
- 11.17** 6.792Ω , 6.569 W

- 11.19** 9.574 V
11.21 7.906 V
11.23 2.92 V, 4.267 W
11.25 1.08 V
11.27 6.667 A
11.29 275.6 VA, 0.1876 (lagging)
11.31 (a) 0.5547 (leading), (b) 0.9304 (lagging)
11.33 (a) 95.26 – $j55$ VA, 110 VA, 95.26 W, 55 VAR, leading pf
 (b) 1497.2 + $j401.2$ VA, 1550 VA, 1497.2 W, 401.2 VAR, lagging pf
 (c) 278.2 + $j74.54$ VA, 288 VA, 278.2 W, 74.54 VAR, lagging pf
 (d) –961.7 – $j961.7$ VA, 1360 V, –961.7 W, –961.7 VAR, leading pf
11.35 (a) 269 – $j150$ VA, (b) 4129 – $j2000$ VA, (c) 396.9 + $j450$ VA,
 (d) 1000 + $j681.2$ VA
11.37 (a) 30.98 – $j23.23$ Ω , (b) 10.42 + $j13.89$ Ω , (c) 0.8 + $j1.386$ Ω
11.39 – $j3.84$ VA (capacitor), 5.12 VA (resistor), $j6.4$ VA (inductor)
11.41 4.543 + $j1.396$ VA
11.43 51.2 mVA
11.45 7.098 $\angle 32.29^\circ$, 0.8454 (lagging)
11.47 120.1 $\angle 0.03145^\circ$ V
11.49 80 μ W
11.51 No power across the capacitors, $S_{10} = 4 \times 10^{-4}$, $S_{20} = 8 \times 10^{-4}$,
 $S_{40} = 4 \times 10^{-4}$ VA
11.53 (a) 0.6402, (b) 295.1 W, (c) 130.4 μ F
11.55 (a) 2.734 mF, (b) 6.3 mF
11.57 (a) 0.8992, (b) 5.74 mF
11.59 9.476 W
11.61 4.691 W
11.63 \$76.26
11.65 75 – $j103.55$ Ω
11.67 (a) 126.2 W, (b) 220 VA
11.69 968.2 kVAR
11.71 (a) 32.91 kVAR, 86.51 kVA, (b) 0.9248, (c) 157.3 A
11.73 (a) \$ 14,521.80, (b) \$ 31,579.2, (c) Yes
11.75 (a) 40 – $j8$ Ω , (b) 66.61 W

Chapter 12

- 12.1** (a) 231 $\angle -30^\circ$, 231 $\angle -150^\circ$, 231 $\angle -270^\circ$ V,
 (b) 231 $\angle 30^\circ$, 231 $\angle 150^\circ$, 231 $\angle -90^\circ$ V
12.3 acb sequence, 208 $\angle 250^\circ$ V
12.5 242.5 $\angle -30^\circ$, 242.5 $\angle -150^\circ$, 242.5 $\angle 90^\circ$ V