Errata for the 4th edition of Alexander and Sadiku.

July 17, 2009

Chapter 1

Practice Problem 1.2, the answer should be 7.358 mA in order to be consistent with the level of accuracy used in the book.

Chapter 2

Practice Problem 2.8, the answer for i_2 should be represented as 250 mA.

Practice Problem 2.16, the current should be represented as 364 mA.

Practice Problem 2.17, the first two resistors should be represented as 50 m? and 505 m?.

Chapter 3

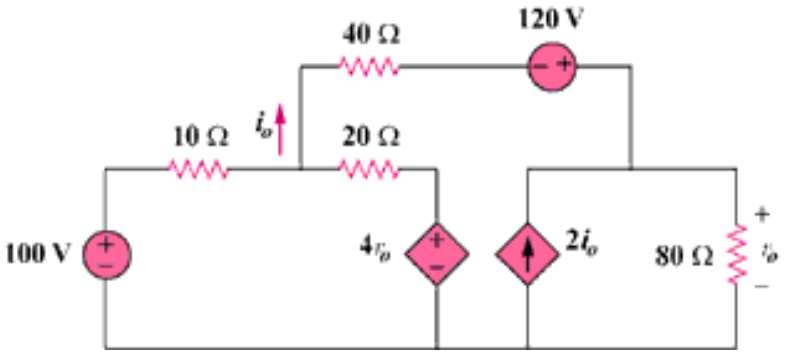
Practice Problem 3.3, the voltage should be represented by –600 mV.

Practice Problem 3.4, the answer for the third voltage should be represented as 652.2 mV.

Practice Problem 3.7, the second current should be represented by 473.7 mA.

Practice Problem 3.11, the first current should be represented as –428.6 mA.

Figure 3.79 should look like this,



Problem 3.32 should not have the MATLAB icon nor should it have the asterisk, *.

Chapter 4

Practice Problem 4.5, the answer is better presented as 750 mA.

Practice Problem 4.7, the answer should be 7.059 mA.

Practice Problem 4.9, the answer for the voltage is better as 5.333 V and the answer for the resistor is better presented as 444.4 m?.

Practice Problem 4.14, the answers are better presented as 5.333 V and 444.4 m?.

Practice Problem 4.13, the resistance should be 4.222 ?.

Prob. 4.49, needs to include the statement, "Let V = 40 V, I = 3 A, R_1 = 10 Ù, R_2 = 40 Ù, and R_3 = 20 Ù."

Prob. 4.76, needs to include the statement, "Let V = 40 V, I = 3 A, R_1 = 10 Ù, R_2 = 40 Ù, and R_3 = 20 Ù."

Chapter 5

Practice Problem 5.1, the current is better presented as 657 µA.

Practice Problem 5.2, the current is better presented as 200 µA.

Practice Problem 5.11, the current is better presented as 650.2 µA.

5.64, Figure 5.91 should show that the wire from v_s to G_2 goes over the wire connecting the positive terminal of the first op amp going to ground.

5.84, Figure 5.103, the last resistor at the bottom of the circuit directly connected to ground, should be 2R.

Chapter 6

Practice Problem 6.1, the units on the current source should be A (for amps).

Practice Problem 6.8, the energy term can be better represented as $200\cos^2(100t)$ çJ.

6.24, the problem statement should read, "For the circuit in Fig. 6.58, determine, (a) the voltage across each capacitor and (b) the energy stored in each capacitor."

Chapter 7

Practice Problem 7.2, the energy should be 5.333 J.

Practice Problem 7.3, the 4-ohm resistor at the top of the circuit should be 1-ohm, the 4-ohm resistor on the right should be 6-ohms, the 1-ohm resistor should be 2-ohm, and the value of i(t) will end up being $5e^{-2t}$ A and v_x will end up being $-5e^{-2t}$ V.

Answer: $5e^{-2t}$ A, $-5e^{-2t}$ V, $t > 0$.

Figure 7.15
For Practice Prob. 7.3.

Practice Problem 7.7, the answer needs units, so an “A" needs to be added at the end.

Chapter 8

Chapter 9

Practice Problem 9.6, the correct answer is 29.77 cos(wt + 49.98°) V.

Practice Problem 9.13, the answer is more accurately stated as 3.333 V.

Practice Problem 9.14, the magnitude is better stated as 172 mV.

Chapter 10

Practice Problem 10.8, the magnitude of the voltage should be 47.43 V.

Chapter 11

Practice Problem 11.2, the power should be 7.417 kW.

Practice Problem 11.7, the current should be 4.619 A.

Chapter 12

Practice Problem 12.2, the voltage magnitudes should be reduced to four places of accuracy to be consistent with the rest of the book. Thus the voltage magnitudes should be 207.8 V. The last line current should be $3.75\angle 111.34°$A.

Practice Problem 12.3, the magnitudes of the line currents are more accurately represented as 20.78A. The value of the angle on the second line current should be 150°

Practice Problem 12.5, the second current should have a phase angle of +173.66°.

Practice Problem 12.6, the magnitude of the real part of source S should be 1054.2 (note to, it is also negative indicating that the source is delivering power) to be consistent with the accuracy used in the rest of the text.

Practice Problem 12.8, the capacitor rating is better represented as 15.76 kVAR.

Practice Problem 12.12, for consistency in accuracy, the angles on the second current should be 83.79° and on the third current should be -75.01°.

Practice Problem 12.14, again for consistency in accuracy, the value of Q in (b) should be 2.356 kVAR.

Practice Problem 12.15, the value of the last Q should be –9.292 kVAR.

Chapter 13

Practice Problem 13.2, the two currents are more accurately represented as $I_1 = 3.578\angle 86.57°$ A and $I_2 = 5.367\angle 86.57°$ A.

Practice Problem 13.12, the value for S_T should be equal to 2.174 kA to reflect the accuracy standards used in the text.

Practice Problem 13.14, the answers are incorrect because they were based on a transformer model that did not act like an ideal transformer. The answers should be $V_1 = 153\angle 2.18°$ V and $V_2 = 230.2\angle 2.09°$ V. Note, if we divide V_2 by V_1 we get $1.5046\angle –.09°$ which is in good agreement that the transformer is ideal with a voltage ratio of 1:1.5 (or 2:3)!

13.78, in the problem statement use k = 0.5 when solving this problem.

Chapter 14

Practice Problem 14.2, the value of the first pole should be –0.6834 to be in line with our accuracy rules.

Practice Problem 14.6, $\frac{20{,}000(s+5)}{(s+10)(s+100)^2}$.

Practice Problem 14.6, the correct constant for the transfer function should be 20,000 giving us

$$\mathbf{H}(\omega) = \frac{20{,}000(s+0.5)}{(s+1)(s+10)^2}$$

Practice Problem 14.11, the values of the inductance is more accurately represented as 15.915 H.

Figure 14.79 For Problems 14.39, 14.71, and 14.91.

14.71, should refer to Figure 14.79.

Chapter 15

Practice Problem 15.8, the second term in the answer should be multiplied by 3 not 4. This gives the following answer, $\delta(t) + (3e^{-4t} - 5\cos(5t))u(t)$.

Practice Problem 15.15, the forcing function should be $2e^{-t}$. Thus, the problem statement is,

$$\frac{d^2v(t)}{dt^2} + 4\frac{dv(t)}{dt} + 4v(t) = 2e^{-t}$$

Chapter 16

Practice Problem 16.1, the units on the current source should be A for amps.

Practice Problem 16.6, the answers for the first two parts should be: (a) 12(s+0.25)/(s(s+0.2); (b) 12 V, 10 V.

Chapter 17

Practice Problem 17.8, the answer should be 889.3 watts.

17.8 In the problem statement, exponention should be exponential.

Chapter 18

Practice Problem 18.1, the second term of the first function should be –4u(t–2) and the answer for (a) should be $\frac{4(e^{-j\omega} - e^{-j2\omega})}{j\omega}$.

Practice Problem 18.8, the magnitude of the current should be 2.795 A.

Practice Problem 18.9, both answers should be 3.125 J.

Chapter 19

Practice Problem 19.3, the following are more accurate values, y_{11} = 75.76 mS and y_{22} = 45.45 mS.

Practice Problem 19.14, A and B are incorrect. The correct answer is [T] = $\begin{bmatrix} \mathbf{6.3} & \mathbf{472\ \Omega} \\ \mathbf{0.425\ S} & \mathbf{32} \end{bmatrix}$.

Appendix G

Chapter 1

Chapter 2

2.21, the units on the answer must be V(volts).

Chapter 3

Chapter 4

4.23, 3 A and 72 watts.

Chapter 5

Chapter 6

Chapter 7

Chapter 8

8.39, $(30 + [0.021e^{-47.83t} – 6.02e^{-0.167t}])$ V.

Chapter 9

Chapter 10

10.11, $I_o = 672.9\angle–47.74°$ mA.

Chapter 11

Chapter 12

Chapter 13

13.11 $i_x = 2.791 \cos(600t–73.26°)$ A.

13.15 $I_N = 687.1\angle6.37°$ mA and $R_N = 19.524\angle87.06°$? or (1.0014+j19.498) ?.

13.23, 30.8 cos(10t + 40.73°) A, 23.67 cos(10t – 99.46°) A, and 1.007 kJ.

13.27, 104.44 W.

13.47, 60.02 cos(3t+9.8°) V.

Chapter 14

14.31 0.5 rad/s

14.35 (a) 1.443 krad/s; (b) 3.33 rad/s; (c) 432.9

14.37 2 k?, (1.4212+j53.3) ?, (8.85+j132.74) ?, (8.85–j132.74) ?, (1.4212–j53.3) ?

14.39 4.841 krad/s

14.43 $\sqrt{\frac{1}{LC}-\frac{R^2}{L^2}}$, $\frac{1}{\sqrt{LC}}$

Chapter 15

Chapter 16

16.5 $\left(e^{-2t}-\frac{2}{\sqrt{7}}e^{-0.5t}\sin\left(\frac{\sqrt{7}}{2}t\right)\right)u(t)A$

$$-5\frac{(s^2+20)}{(s+2)(s^2+0.5s-40)}$$

16.15

16.57 R_2 = 12.5 Ù

Chapter 17

17.03, $b_n = (10/(n\pi))[1 - 2\cos(n\pi) + \cos(n\pi/2)]$.

17.07, the summation must start at n = 1.

17.13, $h(t) = \frac{30}{\pi}-5\sin(t)-\frac{60}{\pi}\sum_{k=1}^{\infty}\frac{\cos(2kt)}{(4k^2-1)}$

17.41, the answers should be, $A_n = \dfrac{100}{\pi(4n^2-1)\sqrt{16n^4-36n+25}}$ and

$$\theta_n = 90° - \tan^{-1}(2n - 2.5/n).$$

Chapter 18

Chapter 19