

## Major Typos in Text

Text on p.121: alongside Fig.3.12, replace  $\alpha = 1.76$  with  $V_\alpha = 1.76$ . Four lines below, replace 1.077 m with 2.77 mm.

Text on pp.310-311: in example 7.24 the emf should be 1.5 V,  $V_{cell}$  should be 7.5 cm<sup>3</sup>,  $E_{cell}$  should be 13230 J,  $u_{cell}$  should be  $1.764 \times 10^9$  J/m<sup>3</sup>, and the discharge time should be  $T = 36,750$  s, or 10 hours and 12 minutes.

Text on p.334: in problem 7-G.3 replace the factors of  $\kappa$  in  $\Delta V$  and  $RC$  with  $1/\kappa$ ; in problem 7-G.5 replace the  $\kappa$  in the denominator of  $C$  with a 2, and a factor  $\kappa$  should multiply the numerator.

Text on p.343: in example 8.3 the power company cost should be \$0.10 (not \$1.00), making batteries 400 (not 40) times more expensive than the power company.

Figure 5.8 on p.194. Here the wire from B (on the right) should be drawn to the lower circular plate (in the middle), not to the upper plate. It was drawn correctly in the original, but the art-house “artist” applied artistic license and redrew it more to his/her liking. Unlike the artistic imagination, there are limits to the scientific imagination.

## Additions

1. Figures 2.10a (p.96) and 3.13 (p.123) should have had, not only in the figure captions, but on the figures, “ $d\vec{F}$  due to  $dQ$ ”, rather than merely  $d\vec{F}$ .

2. In the quantitative calculation for the amber effect on p.121, a better characteristic value for the mass of paper (a hydrocarbon) is about half that of atomic carbon (used in the application), thus decreasing the pull of gravity on paper. Moreover, a better characteristic value for the polarizability of paper is about five times that of atomic carbon, thus increasing the electrical force. This leads to a distance of about 7 mm, rather than the correctly calculated 2.77 mm (the text misprint is 1.077 m). I observe a jumping distance of about 10 mm when I rub a comb through my hair and then lower it toward a small piece of paper.

3. Text on p.333: in problem 7-11.3 add “Hint: see problem 7-11.4”.

4. Text on p.334: in problems 7-G.4 and 7-G.5 add “Hint: see problem 7-G.3”.

## Complete Typos in Text

There is a separate list of typos in the figures. Perhaps the best attitude to take about both the figure and text typos is that these lists should be consulted only if you find something that is puzzling.

### Ch.R/P 1-38

Text on p.18: In the ninth line of the second paragraph, replace the italic “ $C$ ” with a Roman “C”.

Text on p. 37: In Problem R-10.5 (a), replace  $\vec{a}_{1,2}$  with “ $\hat{a}_{1,2}$  in the xy-plane”.

### Ch.1 39-79

Text on p.40: just after section 1.2, replace “loadstone” with “lodestone”.

Text on p.44: In the title to section 4.2, replace “Opposites” with “Unlikes”.

Text on p. 52: In the third line of the first paragraph, replace “B is closer to A than to C” with “B is closer to A than C is to A”.

Text on p. 54: In the next to last line of the second paragraph, replace “an” with “are”.

Text on p. 56: At the end of the next to last paragraph, add: “ $dx$  and  $df$  are called differentials.”

### **Ch.2 80-107**

Text on p.83: In the line before Eq. (2.1), replace “separation” with “separation  $r$ ”.

Text on p.94: top line, replace  $F_1$  with  $F_i$ .

Figure on p.96: Part (b) of Figure caption for Fig.2.10 should be “Force  $d\vec{F}$  due to an element  $dQ$ .”

Text on p.98: in the middle part of equation (2.19), in the denominator replace  $a^3$  with  $a^2$ .

Text on p.105: In problem 2-7.5 the charge should be at  $(a, L)$ , not  $(a, a)$ . In Problem 2-7.7, the charges  $Q$  and  $q$  are positive.

### **Ch.3 108-144**

Text on p.121: alongside Fig.3.12, replace  $\alpha = 1.76$  with  $V_\alpha = 1.76$ . Four lines below, replace 1.077 m with 2.77 mm.

Text on p.134: in the fifth line replace  $E = 2\pi\sigma$  with  $E = 2\pi k\sigma$ .

Text on p.141: in problem 3-9.1, replace  $\hat{z}$  with  $\hat{k}$ .

Text on p.143: In the sixth line of Problem 3-G.10, replace the “3” with a “2” and replace the “ $2^{1/2}$ ” with a “ $3^{1/2}$ ”.

### **Ch.4 145-183**

Text on p.176: in the first line of sect.4.11.4 replace Figure 4.27(a) with Figure 4.27(b).

Text on p.179: In Problem 4-5.7, replace “Two concentric conducting cylinders have” with “Two concentric conducting cylindrical shells have”.

Text on p.181: in problem 4-10.1, on the bottom left line, replace  $\sigma_S = -4 \times 10^3 \text{ C/m}^2$  with  $\sigma_S = -3 \times 10^3 \text{ C/m}^2$ .

### **Ch.5 184-226**

Text on p.201: in the solution of example 5.8, replace 2.30 with 23.0.

Text on p.202: At the end of the second paragraph of Application 5.1, replace  $R_{Cl+}$  with  $R_{Cl-}$ .

Text on p.222: in problem 5-7.2, the last symbol should be  $V(0, y)$ , not  $V(0)$ .

### **Ch.6 227-280**

Text on p.230: in the solution to example 6.1(b),  $V = 8 \text{ V}$ , not  $V = 20 \text{ V}$ .

Text on p.232: in the solution to example 6.2(b), the calculation of  $C_B$  contains an extra factor of 2 that does not affect the final numerical result.

Text on p.235: on the third line,  $C = 9.10 \times 10^{-2} \text{ F}$ .

Text on p.238: in parts (b) and (c) of the solution to example 6.7, replace  $Q_2 = C_1\Delta V_2$  with  $Q_2 = C_2\Delta V_2$ . Numbers are unaffected.

Text on p.273: in problem 6-4.6, replace “associated with” with “connected to”.

Text on p.276: in problem 6-6.10,  $V$  and  $U$  should have factors of  $\pi$  on the right-hand-sides, so they read  $V = \pi kQ/2a$  and  $U = \pi kQ^2/2a$ .

### **Ch.7 281-335**

Text on p.286: In the example at the top of the page, in both parts (b) and (c) there should be a 0.75 in place of a 1.5.

Text on p.308: in example 7.22 the equivalent field should contain  $M$  rather than  $m$ , so  $\vec{E}' = M\vec{g}/q$ .

Text on pp.310-311: in example 7.24 the emf should be 1.5 V,  $V_{cell}$  should be 7.5 cm<sup>3</sup>,  $E_{cell}$  should be 13230 J,  $u_{cell}$  should be  $1.764 \times 10^9$  J/m<sup>3</sup>, and the discharge time should be  $T = 36,750$  s, or 10 hours and 12 minutes.

Text on p.334: in problem 7-G.3 the factors of  $\kappa$  in  $\Delta V$  and  $RC$  should be replaced with  $1/\kappa$ ; in problem 7-G.5 the  $\kappa$  in the denominator of  $C$  should be a 2, and a  $\kappa$  should be in the numerator.

Text on p.335: In Problem 7-G.13, omit the word “radial”.

### Ch.8 336-383

Text on p.343: in example 8.3 the power company cost should be \$0.10 (not \$1.00), making batteries 400 (not 40) times more expensive than the power company.

Text on p.347: the caption to Fig.8.8a should be  $I_1 + I_2 = I_3$ , not  $I_1 = I_2$ .

Text on p.357: the long unnumbered equation in the second paragraph should start with “ $V_b - V_c =$ ”, where  $c$  is the top point associated with the  $4 \Omega$  resistor in Figure 8.14.

Text on p.379: In Problem 8-7.15, note that  $R$  is defined in the previous problem.

Figure and Text on p.381: the resistor  $R$  should be in the right arm (not in the middle arm) and the values should be  $r = 0.24 \times 10^6 \Omega$ ,  $R = 0.01 \times 10^6 \Omega$ ,  $C = 5 \mu\text{F}$ .  $r$  is so large that it would not be an internal resistance, so it should be external to the battery.

### Ch.9 384-418

Text on p.414: problems 9-2.4 to 9-2.6 should have the magnetic moments stated in A-m<sup>2</sup>, not in A-m.

Text on p.415: In the first line of Problem 9-2.11, replace “magnetic line poles” with “magnetic line pole rods with pole strengths per unit length”. In the third line of Problem 9-2.11, replace  $(x_0, 0)$  with  $(x_0, -a)$ . In the third line of Problem 9-2.11, replace  $(x_0, l)$  with  $(x_0, a)$ . In the sixth line of Problem 9-2.11, replace the first  $l$  with  $2a$ . In the sixth line of Problem 9-2.11, remove the  $l$  in front of the  $B$ . At the end of Problem 9-2.11, insert the text “See figure 3.11, with  $q \rightarrow \lambda_m$ ”.

### Ch.10 419-459

Text on p.443: three lines before (10.37), replace “ $a_y =$ ” with “ $a_y =$ ”.

Text on p.451: in (10.55) replace the first  $dW_{emf}$  with  $dW_{pmf}$ .

Text on p.453: in problem 10-4.2 the fourth line from the bottom should begin with “to  $\vec{B}$  and normal to the” rather than merely “to the”.

Text on p.454: in problem 10-4.12 the fourth line from the bottom should end “with  $\vec{B}$  the radially directed field just outside the core”.

Text on p.456: In the first line of Problem 10-6.13, replace “Figure 10.1” with “Figure 10.2”.

Text on p.457: In the next to last line of Problem 10-6.13, replace  $R = v_{\perp}/(2\pi)$  with  $R = v_{\perp}/(2\pi T)$ .

Text on p.459: In Problem 10-G.11, after “moment of magnitude” add  $8.0 \times 10^{22}$  A-m<sup>2</sup>.

### Ch.11 460-504

Text on p.473: At the end of the first paragraph, replace “parallel currents add” with “parallel currents attract.”

Text on p.476: In eq.(11.24), replace  $\int \vec{J} \cdot \hat{n} dA$  with  $4\pi k_m \int \vec{J} \cdot \hat{n} dA$ .

Text on p.480: on the first line of text and in (11.32), replace  $E_{int}$  with  $E_{in}$ .

### Ch.12 505-558

Text on p.516: six lines from the bottom, refer to Fig.10.17b, not to Fig.10.16b.

Text on p.525: in first line of Example 12.8, replace “aligned with” with “parallel to.”

Text on p.531: three lines before example 12.15, replace reference to Fig.12.16 with reference to Fig.12.10.

Text on p.549: In part (d) of Problem 12-4.7, replace “induced currents” with “induced current”.

Text on p.550-551: in problem 12-5.8, replace “within a solenoid” by “within a vertical solenoid” and in part (d) replace “force on one arm” with “force on the top arm”.

Text on p.551: In problem 12-5.13, replace  $dF/dl$  with  $dF/ds$ .

### Ch.13 559-580 - None.

### Ch.14 581-629

Text on p.585: the last term on the right of (14.14) should have a minus sign:  $-\frac{v}{\omega_0 A}$ .

Text on p.609: on the second line, replace 2500 V with 25,000 V.

Text on p.624: in Problem 14-6.1, replace “5 ms” with “0.5 ms”.

Text on p.625: in the next to last line of Problem 14-7.3, the units for C should be nF, not nH.

### Ch.15 630-677

Caption on p.659: in Figure 15.16, the top material is #1 and the bottom material is #2.

Text on p.673: in problem 15-8.2, the laser beam cross-section should be 2.8 mm<sup>2</sup>.

Text on p.676: in problem 15-14.4, replace “seperation” with “separation” and replace  $x = \pm a/2$  with  $x = \pm d/2$ . A current  $I$  flows along the resistance  $R$  connecting the two disks.

### Ch.16 678-735

Text on p.682: in Example 16.1, third line of the solution, replace  $n \neq 0$  with  $m \neq 0$ .

Text on p.730: In the second line of Problem 16-6.17, replace “1575 dark lines” with “1515 dark lines”.

Text on p.731: in problem 16-6.23, parts (a) and (b), replace “Find” with “Estimate”.

Text on p.732: In the fourth line of Problem 16-7.13, replace “minima is 4.86” with “minima on opposite sides of the central maximum is 4.86”.

Text on p.735: In Problem 16-G.9 and in Figure 16.47, replace all instances of  $d\theta$  with  $\delta\theta$  and replace all cases of  $d\phi$  with  $\delta\phi$ .

### Appendices A1-A29

On p.A-1, in  $x_{\pm}$ , replace the symbol  $d'$  with the symbol  $d$ .

On p.A-6, two lines above Sect.A.4, in the expression for  $c$ , interchange the sine and cosine.

### Covers

On the inside front cover, right side: in Some Terrestrial Facts add “heat of fusion of water at 273 K = 6 kJ/mol or  $3.34 \times 10^5$  J/kg” and add “heat of vaporization of water at 373 K = 41 kJ/mol or  $2.256 \times 10^6$  J/kg”. In Astronomical Facts the last reference should have  $\approx$  rather than  $\sim$ ; under Mathematical Symbols, in the sum,  $x_i$  should not be a subscript; at the bottom, replace page 153 with 133; in the tenth line down, replace the capital “O” with the number “0”.

On the inside back page of the cover, in the volume conversion two exponents were put in the wrong case. The correct conversions are  $\text{m}^3 = 10^6 \text{ cm}^3$  and  $\text{liter} = 10^3 \text{ cm}^3$ . Also, the mass conversion  $454 \text{ g} = 1 \text{ pound}$  should have been given.