Corrections to the Second Printing
(January 22, 2000)
Introduction to Electrodynamics, 3rd ed.
by David Griffiths

- Pages iii-viii: Bold face page numbers are aligned up through chapter 2, then indented for the remainder.
- Pages vii-viii: Insert spaces after chapter and section numbers for Chapters 10, 11, and 12.
- Page 5, Eq. 1.8: Insert a factor a before $\mathbf{A}$, on the left.
- Page 5, Fig. 1.9(b): Change "$A_x\,\hat{\mathbf{y}}$" to "$A_y\,\hat{\mathbf{y}}$"; change "$A_x\,\hat{\mathbf{z}}$" to "$A_z\,\hat{\mathbf{z}}$".
- Page 14, five lines from the bottom: Change "coutour" to "contour".
- Page 44, Fig. 1.42: Remove dashed line from origin to P; extend the dashed line that now runs from P out to the arrow $\hat{\mathbf{s}}$, from P back to the z axis.
- Page 60, second line of first equation: square the 3 $\boldsymbol{\mathcal{r}}$'s in the denominator.
- Page 61, line 2: put a space between "if" and "you".
- Page 63, Fig. 2.6: Remove the heavy shading on the line segments extending diagonally up from $-L$ and $+L$; these lines should be light all the way up to P.
- Page 64, Fig. 2.11: The script $\boldsymbol{\mathcal{r}}$ should be larger, to match the other lettering.
- Page 68, 4th line after Eq. 2.12: Change "old" to "closed".
- Page 84, Fig. 2.32: Put prime on $d\tau$.
- Page 86, 2nd line of text: Change "vary" to "very".
- Page 97, 2nd line of **(iv)**: Change $V(\mathbf{a}) - V(\mathbf{b})$ to $V(\mathbf{b}) - V(\mathbf{a})$.
- Page 98, footnote 8: Add the sentence "See Prob. 2.52."
- Page 109, add a new Problem 2.52 (before the double line):

  Problem 2.52

  We know that the charge on a conductor goes to the surface, but just how it distributes itself there is not easy to determine.

One famous example in which the surface charge density can be calculated explicitly is the ellipsoid:

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1.$$

In this case[11]

$$\sigma = \frac{Q}{4\pi abc}\left(\frac{x^2}{a^4} + \frac{y^2}{b^4} + \frac{z^2}{c^4}\right)^{-1/2}, \qquad (2.57)$$

where Q is the total charge. By choosing appropriate values for a, b, and c, obtain (from Eq. 2.57): (a) the net (both sides) surface charge density $\sigma(r)$ on a circular disk of radius R; (b) the net surface charge density $\sigma(x)$ on an infinite conducting "ribbon" in the $x\,y$ plane, which straddles the y axis from $x = -a$ to $x = a$ (let Λ be the total charge per unit length of ribbon); (c) the net charge per unit length $\lambda(x)$ on a conducting "needle", running from $x = -a$ to $x = a$. In each case, sketch the graph of your result.

[11]For the derivation (which is a real *tour de force*) see W. R. Smythe, *Static and Dynamic Electricity,* 3rd ed. (New York: Hemisphere, 1989), Sect. 5.02.

- Page 113, last line in item 1: Change "be" to "been".
- Page 123, unnumbered equation above Eq. 3.11: Change "$\sigma(R)$" to "$\sigma(r)$".
- Page 123, Eq. 3.11: The upper limit of the second integral is ∞, not π.
- Page 140, two lines after Eq. 3.69: Change "In" to "It".
- Page 140, footnote 10, last line: Change "add" to "odd".
- Page 157, Prob. 3.41(a): In the displayed equation, $\hat{\eta}$ should be $\hat{\boldsymbol{r}}$, and in the following line $\boldsymbol{r}$ should be bold.
- Page 159, footnote 13: "107" should be light face.
- Page 167, Eq. 4.11: Change "=" to "≡".
- Page 168, Eq. 4.12: Change "=" to "≡".
- Page 194, Fig. 4.30: Indicate the distance between the plates by putting the letter d (perhaps with a double arrow showing that it goes from the top of the bottom plate to the bottom of the top plate) just to the left of the tail of the arrow labelled x.

- Page 195, Eqs. 4.62, 4.65, and the unnumbered one above 4.65: Change a to w (same letter as in Fig. 4.30).
- Page 229, first line after item 4: Change "latter" to "last of these" (but only if it can be done simply).
- Page 239, Prob. 5.24: Insert the word "works" at the end of the first sentence (right after the equation).
- Page 256, fourth line down: Remove hyphen in "z-direction".
- Page 256, Figs. 6.2(a) and (b): Indicate that the magnetic field points in the z direction, by putting (to the upper left) a $\mathbf{B}$ and a short arrow pointing up.
- Page 271, line 2: Change "whereas" to "so".
- Page 275, first line of text: Remove the word "a".
- Page 289, Eq. 7.6: Put parentheses around the factor multiplying $\mathbf{E}$.
- Page 314, third line: Change "and" to "any".
- Page 351, Eq. 8.15: V should be $\mathcal{V}$.
- Page 363, Prob. 8.15, last equation: $\mathcal{P}$ should be bold face and match $\boldsymbol{\wp}$ in Eq. 8.30 on page 355.
- Page 367, Prob. 9.1: In the second line, change "f_3 and f_4" to "f_4 and f_5".
- Page 379, Fig. 9.10: Right edge of second dark lobe should be hidden by third light lobe.
- Page 396, Eq. 9.139(ii): Insert "$= 0$" before the comma.
- Page 398, line 5: The little circle should be directly above the A: Å.
- Page 440, line above Eq. 10.70: Change r^2 to v^2.
- Page 482, Prob. 12.1: Right after the sentence "Let $\mathcal{S}$ be an inertial reference system." insert the sentence: "Use Galileo's velocity addition rule."
- Page 511, Prob. 12.28: At the end of (a), insert the sentence "Assume all motion is along the x axis."
- Page 526, Figs. 12.35(a) and (b): Where the y_0 and y axes pass behind the upper plate, make the line dashed.
- Page 527, Fig. 12.36: Make the y and z axes solid all the way, and the x axis solid as soon as it emerges from the puncture hole.

- Page 538, line 2: remove the first “of the”.
- Page 538, line after (12.121): insert the words “this with” after “Comparing”.
- Page 559, 6 lines from bottom: **telsa** should read **tesla**.