ERRATA to "FOURIER ANALYSIS AND ITS APPLICATIONS"

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Additional corrections will be gratefully received at `folland@math.washington.edu` .

Page 13: On the line before (1.20), insert "for $A \neq 0$" after "and". Immediately after (1.20), insert "For $A = 0$ the solution is $X(x) = C_1 + C_2x$."

Page 28, item 14: $\sum_{1}^{\infty} \quad \to \quad \frac{2}{\pi}\sum_{1}^{\infty}$

Page 31, bottom: Insert the following material that somehow got deleted: "shall present some variations of this result under other conditions on f. We first define the class of functions with which we shall be working."

Page 33, line −3: $\int_{-\pi+\theta}^{\pi+\theta} \quad \to \quad \int_{-\pi-\theta}^{\pi-\theta}$

Page 36, line −4: taking taking → taking

Page 40, line 10: entry 4 → entry 6

Page 44, line 5: extiensions → extensions

Page 58, line 2: $\int_{-\pi}^{\pi} \quad \to \quad \frac{1}{2\pi}\int_{-\pi}^{\pi}$

Page 61, Exercise 1a: (2.10) → (2.12)

Page 61, Exercise 1b: (2.12) → (2.14)

Page 65, formula (3.9): $|a_n\|^2 \quad \to \quad \|a_n\|^2$

Page 71, line 7: $\sum_0^\infty$ on the left side should be $\sum_1^\infty$.

Page 76, line 3 of proof of Lemma 3.2: $\sum_m^n \quad \to \quad \sum_M^N$ (two places, to avoid conflict with use of n as index of summation)

Page 78, line −9 (a 2-line display): $|\widetilde{c}_n - c_n|^2 \quad \to \quad 2\pi|\widetilde{c}_n - c_n|^2$ (two places)

Page 79, next-to-last line of text: $\int_a^b \quad \to \quad \int_{-\pi}^{\pi}$

Page 90, last line of Theorem 3.10: $\langle f, \phi_n\rangle \quad \to \quad \langle f, \phi_n\rangle_w$

Page 90, line −8: $\langle f_1, \widetilde{f}_2\rangle \quad \to \quad \langle f_1, \widetilde{f}_2\rangle_w$

Page 95, line 4: $f'(a) - \alpha f(a) = f'(b) - \beta f(b) = 0 \quad \to \quad f'(a) + \alpha f(a) = f'(b) + \beta f(b) = 0$

Page 98, line 1: §4.3 → §4.4

Page 100, formula (4.8): When L is 2nd order in t so that $h = (h_1, h_2)$, u_0 is really $(u_0, 0)$.

Page 111, line −2: (4.22) → (4.24)

Page 114, Exercise 8a, line 2: (2.24) → (2.27)

Page 117, line −5: $b \quad \to \quad -b$

Page 152, lines 10, 14, and 15: $\pi c \quad \to \quad c$ (several places)

Page 152, line 12: 5.3 $\to$ 5.2

Page 151, line 5: §4.4 $\to$ §4.5

Page 157, Exercise 4: The differential equation should contain the term u_{zz} (although the requested solutions are independent of z).

Page 162, line -10: §4.2 $\to$ §4.3

Page 163, line 4: $l/2c \quad \to \quad \pi c/l$

Page 176, formula (6.21): $+m^2y \quad \to \quad -m^2y$ and $x \quad \to \quad s$

Page 186, line 11: $e^{-2xz-z^2} \quad \to \quad e^{2xz-z^2}$

Page 179, formula (6.26): $P_n^{|m|}(\phi) \quad \to \quad P_n^{|m|}(\cos\phi)$

Page 190, lines -8 and -7: Delete "it defines a polynomial of degree n only when α is not a negative integer, and".

Page 190 line -1: $k+1-\alpha \quad \to \quad k+1+\alpha$

Page 193, line -3: defninion $\to$ definition

Page 197, line -12: $-n^2y \quad \to \quad +n^2y$

Page 197, line -7: $e^{in\theta}z^n \quad \to \quad e^{in\theta}z^{|n|}$

Page 205, line 0: Delete the incorrect page header.

Page 206, line 3 of (v): §8.1 $\to$ §8.2

Page 213, Exercise 6: defining f_{t+s} $\to$ defining $f_t * f_s$

Page 214, line -2: $i(d/d\xi)e^{-i\xi} \quad \to \quad i(d/d\xi)e^{-i\xi x}$

Page 216, next-to-last displayed formula: $\mathrm{Res}_{z=i} \quad \to \quad \mathrm{Res}_{z=ia}$

Page 220, formula (7.18): The dy is missing from the first integral.

Page 221, line 7: $\frac{1}{2i} \quad \to \quad -\frac{1}{2i}$

Page 222, line 1: 2.7 of §2.4 $\to$ 3.6 of §3.4

Page 224, Exercise 7, line 3: Theorem 2.3 $\to$ Theorem 2.5

Page 230, line 4: $2\pi t \quad \to \quad \pi t$

Page 233, last displayed formula: $\Delta_0\widehat{f} \quad \to \quad \Delta_0\widehat{F}$

Page 235, Exercise 7, last line: $e^{-i(b-a)t/2} \quad \to \quad e^{-i(a+b)t/2}$

Page 236, line 2 of Exercise 10: $f' + cf = 0 \quad \to \quad f'(x) + cxf(x) = 0$

Page 239, line -5: $e^{\xi^2kt} \quad \to \quad e^{-\xi^2kt}$

Page 242, line -1: $\lim_{\delta\to 0} \quad \to \quad \lim_{\epsilon\to 0}$

Page 250, line -3: $e^{2\pi im} \quad \to \quad e^{2\pi in}$

Page 250, line -2: $\widehat{a}_n \quad \to \quad \widehat{a}_m$

Page 251, display after (7.40): $n > k \quad \to \quad n < k$

Page 252, line -5: $a_m \quad \to \quad \widehat{a}_m$

Page 259, lin -9: $f(z) \quad \to \quad f(t)$

Page 261, line 12: (8.2) $\rightarrow$ (8.4)

Page 275, line -7: $\sin(t-s) \rightarrow \sin 2(t-s)$

Page 279, formula (8.18): $\alpha\beta \neq 0 \rightarrow (\alpha,\beta) \neq (0,0)$

Page 286, Exercise 9c, line 1: period $2l \rightarrow$ period $4l/c$

Page 327, line -2: $1-t \rightarrow 2\pi - t$ (2 places in exponents)

Page 328, line 3: $1-t \rightarrow 2\pi - t$

Page 333 (starting below formula (9.27)) and page 334: $\widehat{f} \rightarrow \widehat{F}$ (numerous places!)

Page 354, Example 1, line 1: complex $\rightarrow$ nonzero

Page 355, line 4: $(\alpha\alpha' \neq 0,\ \beta\beta' \neq 0) \rightarrow ((\alpha,\alpha') \neq (0,0),\ (\beta,\beta') \neq (0,0))$

Page 360, second display: $\tau_2 \rightarrow \tau^2$

Page 371, formula (10.32): $+\frac{\beta}{\mu} \rightarrow -\frac{\beta}{\mu}$ and, in the integral, $v_a \rightarrow v_b$

Page 373, last display before Lemma 10.3: $E_1E_4 \rightarrow \mu^{-1}E_1E_4$ and $E_2E_3 \rightarrow \mu^{-1}E_2E_3$

Page 375, Figure 10.2: The coordinates of the vertices should be divided by $b-a$.

Page 375, proof of Theorem 10.4(a): The first seven lines of the argument are flawed because of a confusion between the μ of Lemma 10.3 and the $\zeta = \mu^2$ here. Rather than taking γ_N to be the contour in Figure 10.2, let Γ_N be the *right-hand half* of that contour (corrected as above) in the μ-plane (including endpoints), and let γ_N be the image of Γ_N in the ζ-plane under the map $\zeta = \mu^2$. Thus γ_N is a closed contour consisting of two parabolic arcs with focus at the origin and vertices at $\pm[(N+\frac{1}{2})\pi/(b-a)]^2$, intersecting at $\pm 2i[(N+\frac{1}{2})\pi/(b-a)]^2$. Replace the displays on lines 5 and 7 of the proof by

$$\left|\frac{G(x,y,\mu^2)}{\mu^2-\lambda}\,2\mu\right| \leq \frac{C|\mu|^{-1}}{|\mu^2-\lambda|}2|\mu| \leq \frac{C'}{N^2} \quad \text{for } \zeta \text{ on } \Gamma_N,$$

and

$$\left|\int_{\gamma_N} \frac{G(x,y,\zeta)}{\zeta-\lambda}\,d\zeta\right| = \left|\int_{\Gamma_N} \frac{G(x,y,\mu^2)}{\mu^2-\lambda}\,2\mu\,d\mu\right| \leq \frac{C'}{N^2}(\text{length of } \Gamma_N) = \frac{C''}{N},$$

and then resume the argument in the text starting on line 8.

Page 379, formula (10.35): $xu(x) \rightarrow xu'(x)$

Page 381, first line after second displayed formula: $1/\mu\sqrt{x_-x_+} \rightarrow 1/|\mu|\sqrt{x_-x_+}$

Page 411, line 9: $\dfrac{A(LB)^{n-1}}{(n-1)!} \rightarrow \dfrac{A(LB)^{n-1}}{(n-1)!}|x-x_0|^{n-1}$

Page 414, Answer to Exercise 3c in §3.1: $2-9i \rightarrow 2+9i$

Page 415: Answer to Exercise 3 in §3.2 should be $f_2(x) = x^2 - \frac{1}{3}$.

Page 417, Answer to Exercise 10b in §4.2: π^2kt (in exponent) $\rightarrow \pi^2k$

Page 417, Answer to Exercise 10c in §4.2: The sum should be multiplied by e^{-kt}.

Page 420, Answer to Exercise 2 in §6.3: $P_2^2(\cos\theta) \rightarrow P_2^2(\cos\phi)$

Page 422, Answer to Exercise 9b in §7.4: $e^{-\nu b} \rightarrow e^{-\nu\beta}$ (six places)

Page 429, top line, second column: T $\rightarrow$ Γ