Corrections

for

Functions of One Complex Variable, II

by

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This is a list of corrections for my book Functions of One Complex Variable, II. This is also available from my WWW page (http://www.math.utk.edu/∼conway).

Thanks to R B Burckel.

I would appreciate any further corrections or comments you wish to make.

Minor corrections

Page	Line	From	To
ix	10	built in	built-in
3	22	$\sum_{j=1}^{m} n(\gamma; a) = 0$	$\sum_{j=1}^{m} n(\gamma^j; a) = 0$
7	11	$\dfrac{\partial f}{\partial z} = \dfrac{1}{2}\left(\dfrac{\partial f}{\partial x} - i\dfrac{\partial f}{\partial y}\right).$	$\dfrac{\partial f}{\partial \bar{z}} = \dfrac{1}{2}\left(\dfrac{\partial f}{\partial x} + i\dfrac{\partial f}{\partial y}\right).$
13	18	Area $(D_n \cap G_k)$	Area $(f(D_n) \cap \Lambda_k)$
15	16	$u_x y$	$u_x dy$
22	-2	analtyic	analytic
23	7	*approach* a	*approach a*
24	18	ϵ	ε
24	-2	ϵ	ε
25	23	approaches	approach
25	-13	free analyticity	free analytic
25	-10	analytically	analyticity
25	-7	$h(0) = 0$	$h(0) = a$
25	-5	$\pi 2 < \arg(z - r) < \pi 2 + \alpha\}$	$\pi/2 - \alpha < \arg(z - t) < \pi/2 + \alpha\}$
32	7	$f(B(b; \varepsilon))$	$f(B(a; \varepsilon))$
33	11	bound region	bounded region
34	-7	$\backslash X_n$	$\backslash \tau(X_n)$
37	17	Schwartz	Schwarz
51	15	*Jordan region*	*simple Jordan region*
51	17	Jordan	simple Jordan
51	-4	Jordan	simple Jordan
53	12	Jordan	simple Jordan
54	11	$= \left\lvert \displaystyle\int_{\theta_1}^{\theta_2} \tau'(-1 + re^{i\theta}) rie^{i\theta}\, d\theta \right\rvert.$	$\le \displaystyle\int_{\theta_1}^{\theta_2} \lvert\tau'(-1 + re^{i\theta})\rvert r\, d\theta.$
54	12	the angle	the largest angle
54	12	$1 + re^{i\theta}$	$-1 + re^{i\theta}$
54	14	Schwartz	Schwarz
55	-18	Jordan	simple Jordan
56	-10	polynimally	polynomially
67	14	$\le$	$\ge$
67	15	$\le$	$\ge$
69	-18	(7.5)	(1.4)
69	-2	$a_n \ge g^{(n)}(0)/n!$	$\lvert a_n\rvert \ge \lvert g^{(n)}(0)\rvert/n!$
71	-9	G	G (italics)
71	-7	the j's and k's here should be slanted.	
77	3	$\phi_1(\partial \mathcal{D}), \phi_1(\partial \mathcal{D}) = \phi_1(\partial K_{00})$	$\phi_1(\partial \mathcal{D}) = \phi_1(\partial K_{00})$
81	-7	$\{\Phi_0, \Phi_1, \ldots, \Phi_n\}$	$\Phi_0, \Phi_1, \ldots, \Phi_n$

82	-3	Thus there are Jordan arcs	Since C_j is an analytic curve, there are Jordan arcs
83	1	vlaue	value
82	-2	$\eta_1(0) \neq \eta_2(0)$,	$\eta_1(0) \neq \eta_2(0)$,$\lvert\eta_i(t) - a_i\rvert < \varepsilon$,
83	5	and $\operatorname{ins} C \subseteq G$	and $C \subseteq \{z \in G : \operatorname{dist}(z, C_j) < \varepsilon\}$, so $\operatorname{ins} C \subseteq G$
83	8	such that $\phi(\operatorname{ins} C) = \operatorname{ins} \gamma$	such that $\phi(\operatorname{ins} C) \subseteq \operatorname{ins} \gamma$
84	3	$(z-a)^{-1}$	$(z-\alpha)^{-1}$
84	-1	multiplicites	multiplicities
85	9	C	$\mathbb{C}$
85	18	set is non-empty	set contains 0
91	11	that is insistent on	that requires
91	-8	inner circle of Ω.	inner circle of Ω and orient γ_1 so that $n(\phi(\gamma_1); 0) = -1$.
92	13	with ψ.	with ψ. Since f is a conformal equivalence we have $n(\psi(\gamma_1); 0) = n(f(\phi(\gamma_1)); 0) = -1$.
92	-5	So $n(\gamma_1; 0) = -1$, $n(\gamma_0; 0) = 1$, and $n(\gamma_j; 0) = 0$ for $2 \leq j \leq n$.	So $n(\gamma_j; 0) = 0$ for $2 \leq j \leq n$ and we can orient γ_0 and γ_1 such that $n(\gamma_1; 0) = -1$ and $n(\phi_0; 0) = 1$.
93	11	anlytic Jordan	analytic n-Jordan
94	3	Argument Principle	Argument Principle, if $\zeta \notin \phi(\gamma_j)$ for $0 \leq j \leq n$, then
94	8	that $0 \leq j \leq n$ and $\lvert\zeta\rvert \neq r_j$,	that for $0 \leq j \leq n$,
97	-11	$f : G \to \Lambda$	$f : \Omega \to \Lambda$
98	-2	$n(\gamma_j, a)$	$n(\gamma_j; a)$
101	-12	$\dfrac{r_j^2}{\bar{z} - \bar{a}j}$	$\dfrac{r_j^2}{\bar{z} - \bar{a}_j}$
102	-8	(14.7.14)	(14.7.16)
103	-13	$\sum_{k=m}^{n}$	$\sum_{k=m}^{\infty}$
106	10	It follows that $g(\mathbb{D}) = \mathbb{D}$ and so $g(z) - \lambda(z-a)(1-\bar{a}z)^{-1}$.	It follows from Proposition 7.5 that g is a Möbius transformation.
107	16	thereom.	theorem.
107	-14	equivalence	equivalences
110	20	$z \in T(w)$	$z \in T(W)$
110	-4	bet	be
113	-2	(G, τ)	(G_1, τ_1)
114	-5	But the only way such a conformal equivalence can exist is if $G = \mathbb{C}$. But then Proposition 14.1.1 implies	But according to Proposition 14.1.1, $G = \mathbb{C}$ and $h(z) = az + b$ for complex numbers a and b with $a \neq 0$.

		that $h(z) = az + b$ for complex numbers a and b with $a \neq 0$.	
116	10	dentoed	denoted
119	10	$\operatorname{Im} z = \operatorname{Im} M^{-1}M(z) <$	$\operatorname{Im} z = \operatorname{Im} MM^{-1}(z) < \operatorname{Im} M^{-1}(z)$ $\leq \operatorname{Im} z$
119	-10	$c, d \in \mathbb{Z}\}$	$c, d \in \mathbb{Z}$ and c, d occur in some M in $\mathcal{G}\}$
119	-7	G	$\mathcal{G}$
121	10	an	and
122	5	no common divisor, there is an odd integer d such that b and d have no common divisor and there is an odd integer a	no common divisor, there is an odd integer a
122	-14	a neighborhood of z_+ and	an open neighborhood of z_+ (Verify!) and
122	-4	First λ	First, λ
124	6	Proposition 2.1	Theorem 1.3 and Proposition 2.1
124	15	$\mathcal{F}\|\mathcal{B}$	$\mathcal{F}\|B$
124	-7	w in B	z in B
126	15	continuation	continuation along γ
126	18	continuation and	continuation, $g_i(\Delta_i) \subseteq G$, and
126	20	(G_n, Δ_0),	(G_n, Δ_0) and $g(\Delta) \subseteq G$,
126	-9	path γ	path γ such that $g_t(\Delta_t) \subseteq G$ for all t
126	-8	z in Δ_t	z (*italics*) in Δ_t
127	2	neighborhood of α_0	neighborhood of α_0 that is contained in Ω
127	5	$g(\alpha_0)$ and	$g(\alpha_0) = 0$ and
127	7	continuation	continuation along γ
127	8	that $g_t(\Delta_t)$	that $\Delta_t \subseteq \Omega$ and $g_t(\Delta_t)$
127	10	continuation and	continuation with $\Delta_i \subseteq \Omega$ and
127	15	Since $h_0 \in \mathcal{F}$, $\mathcal{F} \neq \emptyset$.	Hence $h_0 \in \mathcal{F}$ and $\mathcal{F} \neq \emptyset$.
127	-16	$B(\alpha_O; \delta)$	$B(\alpha_0; \delta)$
128	8	the function	a function
128	12	continuation of h ever	continuation of h in G with values in $\mathbb{D}$ ever
128	-8	$g'(h(\alpha_O))\kappa$	$g'(h(\alpha_0))\kappa$
129	4	the function	a function
129	19	Thus the	Thus (there is something extra to do here) the
129	-7	appraches	approches
131	-7	$f(a) = 0$	$f(a) = a$

205	-10	$\mathrm{Re}\left(\frac{1+\bar{w}}{1-z\bar{w}}\right)$	$\mathrm{Re}\left(\frac{1+z\bar{w}}{1-z\bar{w}}\right)$

More substantial corrections

Page	Line	From	To
13	14	Because $f(\partial D_n)$ is a smooth curve,	The set $G\setminus \cup_n D_n$ can be wr countable union of compact s $\cup_j K_j$(Why?). Since f is ana locally Lipschitz. Thus Area for each $j \geq 1$. Thus
82	20	Theorem 3.4 should also show that if G is on the "left" of a boundary curve γ of G, then Ω is on the"left" of $\phi(\gamma)$.	
136	-8	**Add the following sentence as a separate paragraph.** The treatment in this section and the next are based on Duren [1983].	
385		In the appropriate place, add the following reference. P L Duren [1983], *Univalent Functions*, Springer-Verlag, New York.	