EXPLICIT FORMULAS FOR REGULARIZED PRODUCTS AND SERIES

Jay Jorgenson and Serge Lang

	Intr	oduction	3
I	Asy:	mptotic estimates of regularized harmonic	11
		Regularized products and harmonic series	14
		Asymptotics in vertical strips Asymptotics in sectors	20
		Asymptotics in a sequence to the left	22 24
		Asymptotics in a parallel strip	34
	6.	Regularized product and series type	36
		Some examples	39
II	Cra	mér's Theorem as an Explicit Formula	43
	1.	Euler sums and functional equations	4
	2.	The general Cramér formula	4
		Proof of the Cramér theorem	5. 5'
	4.	An inductive theorem	5
III	Exp	licit Formulas under Fourier Assumptions	61
	1.	Growth conditions on Fourier transforms	6:
		The explicit formulas	60
	3.	The terms with the q's	7: 78
	4.	The term involving Φ	
	5.	The Weil functional and regularized product type	79
IV	Fron	n Functional Equations to Theta Inversions	8
	1.	An application of the explicit formulas	8
		Some examples of theta inversions	9:

V	From Theta Inversions to Functional Equations	97
	1. The Weil functional of a Gaussian test function	99
	2. Gauss transforms	101
	3. Theta inversions yield zeta functions	109
	4. A new zeta function for compact quotients of M ₃	113
VI	A Generalization of Fujii's Theorem	119
	1. Statement of the generalized Fujii theorem	122
	2. Proof of Fujii's theorem	125
	3. Examples	128
	Bibliography	131
	A SPECTRAL INTERPRETATION OF WEIL'S EXPLICIT FORMULA Dorian Goldfeld	
1.	Introduction	137
	Notation	139
3.	Construction of the indefinite space $\mathcal{L}^2(\Upsilon)$	-00
		140
5	Spectral theory of $\mathcal{L}^2(\Upsilon)$	140 141
υ.		·
	Spectral theory of $\mathcal{L}^2(\Upsilon)$	141
6.	Spectral theory of $\mathcal{L}^2(\Upsilon)$ Eisenstein series Cusp forms The zeta function associated to an automorphic form	141 142 145
6. 7.	Spectral theory of $\mathcal{L}^2(\Upsilon)$ Eisenstein series Cusp forms The zeta function associated to an automorphic form on $L^2(\Upsilon)$	141 142 145
6. 7. 8.	Spectral theory of $\mathcal{L}^2(\Upsilon)$ Eisenstein series Cusp forms The zeta function associated to an automorphic form on $L^2(\Upsilon)$ The Rankin-Selberg convolution	141 142 145 147 148
6. 7. 8. 9.	Spectral theory of $\mathcal{L}^2(\Upsilon)$ Eisenstein series Cusp forms The zeta function associated to an automorphic form on $L^2(\Upsilon)$ The Rankin-Selberg convolution Higher rank generalizations	141 142 145 147 148 148
6. 7. 8. 9.	Spectral theory of $\mathcal{L}^2(\Upsilon)$ Eisenstein series Cusp forms The zeta function associated to an automorphic form on $L^2(\Upsilon)$ The Rankin-Selberg convolution	141 142 145 147 148