

1052-30-45

yaacov kopeliovich*, MEAG NY 540 Madison Avenue, New York, NY 10022. *Towards Thomae formula for general cyclic covers of the Sphere.* Preliminary report.

Let $f : X \mapsto CP^1$ be a cyclic cover of the sphere of degree N . Assume that X is ramified above m points, $\lambda_1 \dots \lambda_m$. Let $\theta[e](z, \tau)$ be a g dimensional theta function attached to X and g is the genus of X . We show how an application of Riemann theorem on the theta divisor produces $e \in R^{2g}$ such that $\theta[e](0, \tau_X) \neq 0$ where τ_X is the period matrix of X . For these e we conjecture a formula that express $\theta[e](0, \tau_X)$ as a polynomial in $\lambda_1 \dots \lambda_m$. We sketch the connection with representation theory of symmetric groups and its applications to compute dimensions of the theta functions given above in certain examples. (Received August 07, 2009)