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where $\hat{\phi}$ is the sigma quotient (7.10) relative to the lattice (7.9), and $\mathcal{P}^{-1}(z)$ is the elliptic integral of the first kind, in Weierstrass normal form, relative to Λ .

REMARK. We have seen that double valued reflection places a severe restriction on a real algebraic curve in the complex plane. In fact our results should provide the basis for a complete and explicit classification. We have also seen how double valued reflection may be used to explicitly determine Riemann maps. Apparently, all known such examples can be so explained. The result in the above theorem seems to be new. It would be interesting to work out more examples in the genus one case.

REFERENCES

- [1] CARATHEODORY, C. *Conformal Representation*. Cambridge University Press (1952).
- [2] COURANT, R. and D. HILBERT. *Methods of Mathematical Physics*, vol. I. Interscience, New York (1953).
- [3] DU VAL, P. *Elliptic Functions and Elliptic Curves*. Cambridge University Press (1973).
- [4] FARKAS, H. and I. KRA. *Riemann Surfaces*. Springer-Verlag (1980).
- [5] FRICKE, R. *Elliptische Functionen*. B.G. Teubner, Leipzig und Berlin (1916).
- [6] HURWITZ, A. and R. COURANT. *Functionentheorie*. Springer-Verlag (1964).
- [7] KELLOGG, O.D. *Foundations of Potential Theory*. Dover Publications, New York (1954).
- [8] MOSER, J.K. and S.M. WEBSTER. Normal forms for real surfaces in \mathbb{C}^2 near complex tangents and hyperbolic surface transformations. *Acta Math.* 150 (1983), 255-296.
- [9] NEHARI, Z. *Conformal Mapping*. Dover Publications, New York (1975).
- [10] SCHWARZ, H.A. *Gesammelte Mathematische Abhandlungen*, vol. II. Berlin (1890).

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