Zeitschrift: L'Enseignement Mathématique

Herausgeber: Commission Internationale de l'Enseignement Mathématique

Band: 17 (1971)

Heft: 1: L'ENSEIGNEMENT MATHÉMATIQUE

Artikel: THE CONVERSE TO THE FOUR VERTEX THEOREM

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Bibliographie

DOI: https://doi.org/10.5169/seals-44584

$$\zeta = \frac{\mathfrak{M} - \mathfrak{N}}{3(2\pi + \mathfrak{M} - \mathfrak{N})}.$$

Note that $\zeta \leqq \pi/2$, as demanded at the beginning of section 3. Our previous constructions now lose their provisional character and become quite definite.

With this choice of ζ, $I_1(\Sigma^1)$ must also miss the origin, and is homotopic in $R^2 - \{0\}$ to $J_1(\Sigma^1)$, which links the origin once. Just as in the proof of the Fundamental Theorem of Algebra, it now follows that somewhere within the 2-cell B^2 there must exist a root h of the equation $I_1(h) = \int_{S^1} fh^* h^{-1}(\varphi) \vec{N}(\varphi)\, d\varphi = 0$. Then

$$I(h h^{*-1}) = \int_{S^1} f(h h^{*-1})^{-1} \vec{N}(\varphi)\, d\varphi = 0,$$

and our proof is over.

The author acknowledges partial support from the National Science Foundation via grant GP-19693.

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(Reçu le 26 août 1971)

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