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De l'euclidianité de $\mathbb{Q}\left(\sqrt{2+\sqrt{2+\sqrt{2}}}\right)$ et $\mathbb{Q}\left(\sqrt{2+\sqrt{2}}\right)$ pour la norme

par Jean-Paul CERRI

Abstract. This article presents an algorithm which has allowed us to show, with the help of a computer, that the maximal real subfield K of the cyclotomic field $\mathbb{Q}(\zeta_{32})$ where $\zeta_{32} = \mathrm{e}^{\mathrm{i}\pi/16}$, totally real number field of degree 8 and discriminant 2 147 483 648, is norm-Euclidean, and more precisely, to prove that $M(K) = \frac{1}{2}$. Furthermore, it can be proved using the same method that if $K = \mathbb{Q}\left(\zeta_{16} + \zeta_{16}^{-1}\right)$, we also have $M(K) = \frac{1}{2}$ (as conjectured by H. Cohn and J. Deutsch). The results relative to this case are presented at the end of this paper.

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