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(bumby@math.rutgers.edu). *Applying the divided cell algorithm*. Preliminary report.

Originally designed by B. N. Delone [Izv. Akad. Nauk SSSR 11 (1947), 505-538], the divided cell algorithm is an inhomogeneous version of the regular simple continued fraction algorithm. It was developed by Delone to calculate the inhomogeneous minimum of binary quadratic forms, and its development was continued by E. S. Barnes and H. P. F. Swinnerton-Dyer [Acta Math. 92 (1954), 199-234] and Jane Pitman [Acta Arith. 5 (1958), 81-116]. Advances in computing and the modernization of linear algebra have allowed us to simplify the algorithm. In this talk we show how the updated algorithm can be used to recast and simplify some of Davenport's work [Quart. J. Math 1 (1950), 54-62; Nederl. Akad. Wetensch. 50 (1947), 484-491, 741-749, 909-917]. (Received September 10, 2008)