QUADRATIC MINIMA AND MODULAR FORMS

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ABSTRACT. We give upper bounds on the size of the gap between the constant term and the next nonzero Fourier coefficient of an entire modular form of given weight for $\Gamma_0(2)$. Numerical evidence indicates that a sharper bound holds for the weights $h \equiv 2 \pmod 4$. We derive upper bounds for the minimum positive integer represented by level-two even positive-definite quadratic forms. Our data suggest that, for certain meromorphic modular forms and $p = 2, 3$, the p-order of the constant term is related to the base-p expansion of the order of the pole at infinity.