



# YMC 2006



## Young Mathematicians Conference 2006

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### FUNDAMENTAL UNITS AND THE CLASS NUMBER

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**Abstract of Report Talk:** This summer we have been working at Mount Holyoke College with Professor Guiliana Davidoff studying class numbers of quadratic forms. A central result on the theory is Dirichlet's class number formula, which for forms of positive discriminant is

$$h(d) = \frac{L(1, \chi) \sqrt{|D|}}{\log(\epsilon_d)}$$

The behavior of the class number ( $h(d)$ ) is thus directly connected with that of the  $L$ -function, and the fundamental unit of the quadratic number field ( $\epsilon_d$ ). In our research, we looked at the growth of these second two quantities with respect to  $d$  in hopes of gaining information about the class number.

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