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Patrick X. Rault* (rault@geneseo.edu), Assistant Professor of Mathematics, 326 C South Hall, State University of New York, Geneseo, NY 14454. *On uniform bounds for lattice points in intersections of hyperbolic plane regions.*

We will present upper bounds for the number of primitive lattice points in hyperbolic plane regions. Specifically, we study regions in the plane bounded by equations $|f(x, y)| = B$ and $|g(x, y)| = C$, where f and g are indefinite quadratic forms. Unlike Gauss' circle theorem and other related results, these hyperbolic regions are nonconvex and nonsmooth. The bound obtained may be made independent of the choice of hyperbolas as it is inversely proportional to a positive power of $R(f, g)$, the resultant, and $D(f)D(g)$, the discriminants. We will briefly discuss a corollary on counting rational points on plane curves, which improves on certain cases of a theorem of Heath-Brown. (Received August 13, 2009)