Michigan Math Club

Thursday at 4pm in the Commons
Free Pizza and Pop

Triangles, Congruent Numbers, and Elliptic Curves

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Abstract for 11 February 2010

We are familiar with the Pythagorean Theorem, and perhaps with methods of constructing right triangles with all rational sides. While a right triangle with rational sides will always have rational area, does this work the other way round? For a given rational number n, can we find a right triangle with all sides rational that has area n? Not always! If we can find such a triangle, we will call the number n ``congruent''. In the quest to discover which n are congruent, we will encounter elliptic curves, and their group structure. Time permitting, we will say a bit about the Birch and Swinnerton-Dyer conjecture (BSD), one of the Clay Foundation Millennium problems.