1077-O5-396   **John C. Miller*** (`xyalgebra@mindspring.com`), 110 Riverside Dr AP 14C, New York, NY 10024.
Providing Intelligent Step-by-Step Help in Solving Practice Problems Online. Preliminary report.

Math instructors routinely request that students show every step of each problem solution, in order to provide the best feedback if the last step is incorrect. Most online practice software, however, accepts as student input only a short final answer and responds with a stored solution often using a method different from the student's method. Online students, lacking routine access to an instructor, would greatly benefit from intelligent step-by-step help. Such help requires algorithms (a) to determine equivalence of each new step and (b) to describe and, if needed, provide a reasonable next step after literally any correct student step, regardless of method. Intelligent next step generation is not trivial even for a course as basic as Algebra I. The presenter will show and offer for free downloading a program incorporating such algorithms for most Algebra I problems. The goals are (a) to obtain feedback on this particular implementation and (b) to stimulate discussion of ways of making such help widely available at all levels. (Received August 29, 2011)