1116-E1-1136   **Michael E Gage*** (`gage@math.rochester.edu`), Department of Mathematics, University of Rochester, Rochester, NY 14627. *Case study of interoperability and reuse: WeBWorK, HTML and Moodle.* Preliminary report.

WeBWorK, used alone, presents interactive mathematics homework exercises in a manner suitable for "end of section" review. Its analysis of students' mathematical answers is second to none.

WeBWorK questions become even more powerful when they are used with other systems.

I'll illustrate how one can spice up a web page of mathematics exposition by embedding one or more active WeBWorK questions. One easy snippet of HTML code provides interactive examples in the middle of the text.

The same WeBWorK webservice makes it possible to add the mathematical smarts of WeBWorK to the Moodle quiz module. Moodle provides all of the features of an LMS and WeBWorK adds high quality processing of mathematics questions to the Moodle quizzes.

These examples show how interoperability between open source systems makes a sum more useful than its parts and how a single WeBWorK question can be repurposed as an example, as a homework problem and as a quiz question. Reuse saves instructor and author time. Interoperability allows for fewer compromises, better instructional materials, and cuts down on unnecessary reinvention.

I will give references to detailed instructions for combining WeBWorK with Moodle, Sage, GeoGebra and MathBook XML for use with your own students. (Received September 17, 2015)