1086-H1-1439   **Paul E Seeburger*** (`pseeburger@monroecc.edu`), Monroe Community College, 1000 E. Henrietta Rd., Rochester, NY 14623. *Visually Verifying Homework Problems in Multivariable Calculus.*

Multivariable Calculus involves many concepts that require three-dimensional visualization to fully understand. Using CalcPlot3D, an online applet, students can view & print visual verifications for a variety of multivariable calculus homework problems. Examples include the plane determined by three points, the intersection of two surfaces, contour plots, directional derivatives, tangent planes, level surfaces, Lagrange multiplier optimization, and Riemann sums of rectangular prisms. Short video lessons using CalcPlot3D to visually verify examples of many of these topics can be found on YouTube, and four assessment/exploration activities have been created to help students "play" with the 3D concepts themselves, and to assess improvements in geometric understanding gained from these activities. CalcPlot3D is part of an NSF-funded grant project called Dynamic Visualization Tools for Multivariable Calculus (DUE- CCLI #0736968). See http://web.monroecc.edu/calcNSF/. (Received September 22, 2012)