

Meeting: 1003, Atlanta, Georgia, MAA CP X1, MAA General Contributed Paper Session, I

1003-X1-1194 **Ward E. Canfield*** (wcanfield@nl.edu), 1827 E. Bittersweet Ln, Mt. Prospect, IL 60056. *Easy Curve-fitting Investigations in Pre-calculus Using Finite Differences and Technology*. Preliminary report.

Often curve-fitting with technology is a push-button affair for students, with the origin of the fitting curve and the related topic of closeness-of-fit both obscured. However, using Newton's formula, a result from the theory of finite differences nearly 150 years ago, students may create their own fitting polynomials easily with a spreadsheet and computer algebra system. Using residuals, students may explore the effect of using different data points to create the fitting polynomial, and thus investigate the concept of closeness-of-fit. Newton's formula itself is easily motivated for students, and makes a nice connection with an historical interpolation method difficult to use practically until the advent of computer technology. (Received October 04, 2004)