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Linking Polynomials to Whole Numbers to Ease the Anxiety of the Under-Prepared Students.

A key to student success in mathematics is the degree of confidence the student has in his or her ability to "perform" mathematics. Students in developmental courses and many in introductory courses have experienced difficulty in high school algebra courses. They view variables as some strange magical symbols whose meanings they cannot decipher. Linking polynomial expressions to whole numbers allows students to feel more comfortable operating with polynomials. Polynomials using a single variable are analogous to whole numbers. The coefficients are the "digits" and the powers of the variable are the place values. Polynomials can have "digits" that are not digits, since the coefficients can be negative or fractions. Students are shown 37, which is read "three hundred, halfty-seven". What is the value of this number? It is $300 + (10) + 7$, or 312. Operating with polynomials can be checked by substituting 10 for the variable. Factoring of polynomials is related to the factors of whole numbers. Using the student's familiarity with whole numbers to develop a degree of confidence in the ability to operate with polynomial expressions is not a panacea but it has proven to be effective. (Received August 24, 2006)