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**Fred Halpern\*** (fredhalp@gmail.com). *Integration by Guessing*.

We illustrate Integration by Guessing: guess, differentiate to check the guess, and then adjust to get an exact fit. It is a simple and powerful methodology, useful in many situations.

The adjustments are of two kinds: 1. If the guess is off by a factor, divide by the factor. 2. If the derivative of the guess has an extra term, then subtract the integral of the term from the guess (One use is integration by parts).

Standard integration techniques, substitution and Integration by Parts, begin with a hidden guess. Recognizing the role of hidden guesses leads to shortcuts that simplify your work, avoiding tedious, distracting calculations.

We also illustrate the power of a theorem of Pease and provide a proof using guessing. Pease's theorem provides easy solutions to many integration by parts problems where the guessing method is not directly applicable. (Received September 08, 2014)