1056-J5-783   **James H Fife*** (`jfife@ets.org`), Educational Testing Service, Mail Stop 13-E, Rosedale Road, Princeton, NJ 08541. *Scoring line of best fit test questions.*

A test question might ask a student to plot a line that models a set of data points. The response is to be scored based on how close the line is to the line of best fit, defined as the line with minimum root mean square deviation (RMSD). "Closeness" is measured as the relative difference between the RMSD of the response line and the RMSD of the line of best fit. A cut point is established, and a response receives credit if the relative difference for that response is less than the cut point. Calculating the RMSD, however, can be complicated. The calculations can be simplified by plotting, in mb-space, the values of m and b for which the relative difference of the line $y = mx + b$ is less than the cut point. This region is elliptical and can be approximated as the region between two parabolas. Thus, bounds can be given on m and b that determine acceptable responses, where the bounds on b are quadratic functions of m. (Received September 17, 2009)