which, solving for x, approximately yields

$$x = (1.91, 0.84, 3.33, -4.16, 4.14).$$

Using the solution for x as a starting point we find that the expression

$$\text{Rating} = \frac{50 + 20(\%\ \text{Comp}) + 80(\%\ \text{TD}) - 100(\%\ \text{INT}) + 100(\text{YDS}/\text{ATT})}{24}$$

gives the ratings of Table 1 up to rounding. Note, for example, that touchdown percentage is deemed to be four times as important as completion percentage with this rating scheme.

Rather than find the solution vector x which minimizes the sum of squared deviations (the "L_2" solution) one could find x to minimize the sum of absolute deviations (the "L_1" solution) or to minimize the maximum absolute deviation (the "L_∞" solution) by solving the appropriate linear programming problem (in our case these three solutions are nearly identical). For those familiar with linear programming the details are given, for example, in [**5**].

References

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Stacking Ellipses—Revisited

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I recently read the September 1991 issue of the *CMJ* and the article *Stacking Ellipses*. The point of the article wasn't expressly stated, but I surmised that it was to determine the area of an ellipse without resorting to calculus, given Cavalieri's principle and the area of a circle. If this is the case, a much simpler proof in the same vein exists, which also does not need to distinguish between rational and irrational values for the semiaxes. Merely inscribe the ellipse $x^2/a^2 + y^2/b^2 = 1$ in its circumscribing circle $x^2/a^2 + y^2/a^2 = 1$ and compare y values. Since they are in the ratio b/a, the areas must be likewise. Hence the area of the ellipse is πab.

Quadratic Confidence Intervals

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In an introductory statistics course, students learn from the central limit theorem that for binomial data with sample proportion $\hat{p}$ and large enough sample size n, $(\hat{p} - p)/\sqrt{p(1-p)/n}$ is approximately distributed as a standard normal variable