We conclude that the points (X_i, y_i) (where X_i is the ith row of X) almost lie on the plane of equation

$$x + y - z - 1 = 0,$$

and that f is almost the function given by $f(x, y) = 1.1x + 1.1y - 1.2$. See Figures 55.3 and 55.4.

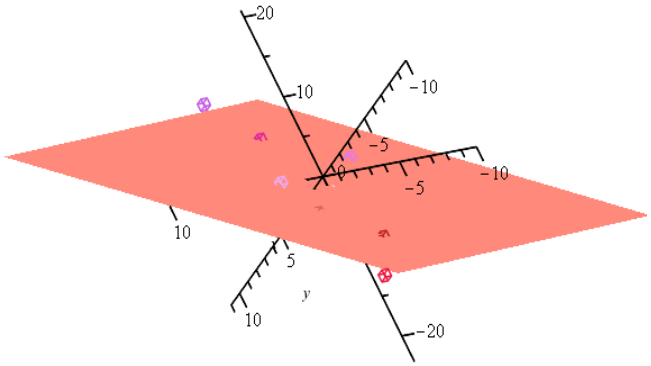

Figure 55.3: The graph of the plane $f(x, y) = 1.1x + 1.1y - 1.2$ as an approximate fit to the data (X, y_1) of Example 55.1.

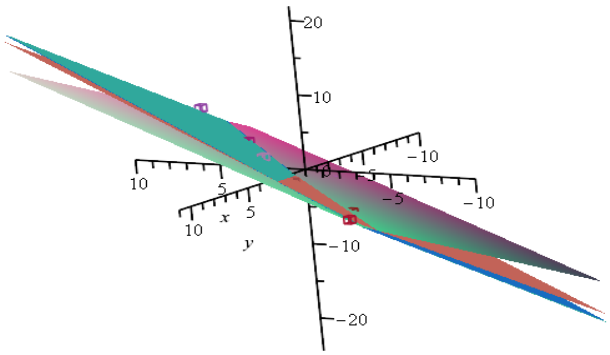

Figure 55.4: A comparison of how the graphs of the planes corresponding to $K = 1, 0.1, 0.01$ and the salmon plane of equation $f(x, y) = 1.1x + 1.1y - 1.2$ approximate the data (X, y_1) of Example 55.1.

If we change y_1 to

$$y_2 = \begin{pmatrix} 0 & -2 & 1 & -1 & 2 & -4 & 1 & 3 \end{pmatrix}^\top,$$