

Prob 4 (my numbers) Minimize

Solve

$$S(a,b) = (a+b)^2 + (25a+b-5)^2 + (49a+b-10)^2.$$

$$S_a(a,b) = 0$$

$$S_b(a,b) = 0$$

$$2(a+b) + 2(25a+b-5) \cdot 25 + 2(49a+b-10) \cdot 49 = 0$$

$$2(a+b) + 2(25b-5) + 2(49-10) = 0$$

2 Linear equations in 2 unknowns.

Write as $M \begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} c_1 \\ c_2 \end{bmatrix}$ so $\begin{bmatrix} a \\ b \end{bmatrix} = M^{-1} \begin{bmatrix} c_1 \\ c_2 \end{bmatrix}$

'Least squares'
data fitting