1) Modify your code to add linear constraints using the two methods we have discussed.

The table below consists of N=25 values of y and $d(y)$ generated from the following integral

$$\int_0^1 xe^{-yx} m(x) dx = d(y)$$

and random error, with a mean of zero and a standard deviation of 0.000005, was included. The data are in asg5.dat. Solve for $m(x)$ using

a) Simple quadrature ie $m = K^{-1}d$, ie $N = M = 25$.

Again, I call this inversion simply Least-Squares

b) ~~Gauss-Newton~~ inversion, $N > M$.

c) Minimum model inversion, $N < M$.

d) Marquardt-Levenberg inversion.

e) with minimum model flatness inversion.

f) with smoothest model inversion.

g) and constrained inversion with $m(0) = 0, \quad m(1) = 0$.

y	$d(y)$
0.1	-0.1439
0.2	-0.1299
0.3	-0.1170
0.4	-0.1052
0.5	-0.0944
0.6	-0.0844
0.7	-0.0753
0.8	-0.0699
0.9	-0.0593
1.0	-0.0523
1.2	-0.0400
1.4	-0.0297
1.6	-0.0211
1.8	-0.0140
2.0	-0.0081
2.5	$+0.0025$
3.0	$+0.0088$
3.5	$+0.0123$
4.00	$+0.0140$
5.0	$+0.0144$
6.0	$+0.0130$
7.0	$+0.0112$
8.0	$+0.0099$
9.0	$+0.0078$
10.0	$+0.0065$