Errors for single runs

Train Generative 1

	L1	L2	Loo
w1	.8196	.1067	.1891
w2	.8505	.1042	.1896
woo	.8884	.1169	.1626

. Test

	L1	L2	Loo
w1	79.8979	10.1212	.3581
w2	79.7429	9.9977	.3434
woo	83.5805	11.0433	.3596

Train Generative 2

	L1	L2	Loo
w1	2.0281	.8556	0.6628
w2	2.2855	0.7583	0.5643
woo	2.8294	0.9621	0.4372

. Test

	L1	L2	Loo
w1	431	7184	65
w2	465	7179	65
woo	535	7195	65

Train Generative 3

	L1	L2	Loo
w1	0.4899	0.0519	0.1717
w2	0.5259	0.0441	0.1159
woo	0.5389	0.0442	0.1077

. Test

	L1	L2	Loo
w1	82.4539	12.7603	0.6978
w2	70.0632	10.4970	0.7206
woo	68.8216	10.3073	0.7244

100 Samples

Train Generative 1

	L1	L2	Loo
w1	.6878	.0928	.1963
w2	.7329	.0833	.1692
woo	.8705	.1039	.1402

. Test

	L1	L2	Loo
w1	91.6365	13.2753	.3794
w2	87.1409	11.9533	.3669
woo	95.3761	14.3817	.3920

Train Generative 2

	L1	L2	Loo
w1	11.3782	4138.5	9.8573
w2	18.6208	3266.0	7.7421
woo	46.1930	10215.0	5.0081

. Test

	L1	L2	Loo
w1	792.28	601540	318.62
w2	1951.9	594980	319.6378
woo	5268.2	1630400	322.198

Train Generative 3

	L1	L2	Loo
w1	0.6183	0.1053	0.2115
w2	0.6700	0.0918	0.1819
woo	0.8947	0.1348	0.1435

. Test

	L1	L2	Loo
w1	73.4595	11.6053	0.6444
w2	77.8159	12.4601	0.6460
woo	101.8993	19.7259	0.6691

Polynomial Single

Train Generative 1

	L2
c1	0.7352
c3	0.4433
c5	0.2501
c9	0.0000

Test

	L2
c1	60
c3	40
c5	30
c9	683550

Train Generative 2

	L2
c1	.6940
c3	.1162
c5	.1566
c9	0

Test

	L2
c1	54
c3	11
c5	17
c9	42801

100 samples

Train Generative 1

	L2
c1	.5066
c3	.1957
c5	.0912
c9	0

Test

	L2
c1	74
c3	281.78
c5	21775
c9	1.506*10^11

Train Generative 2

	L2
c1	.3695
c3	.0677
c5	.0452
c9	0

Test

	L2
c1	61.41
c3	30.39
c5	5746.5
c9	3.8193*10^13

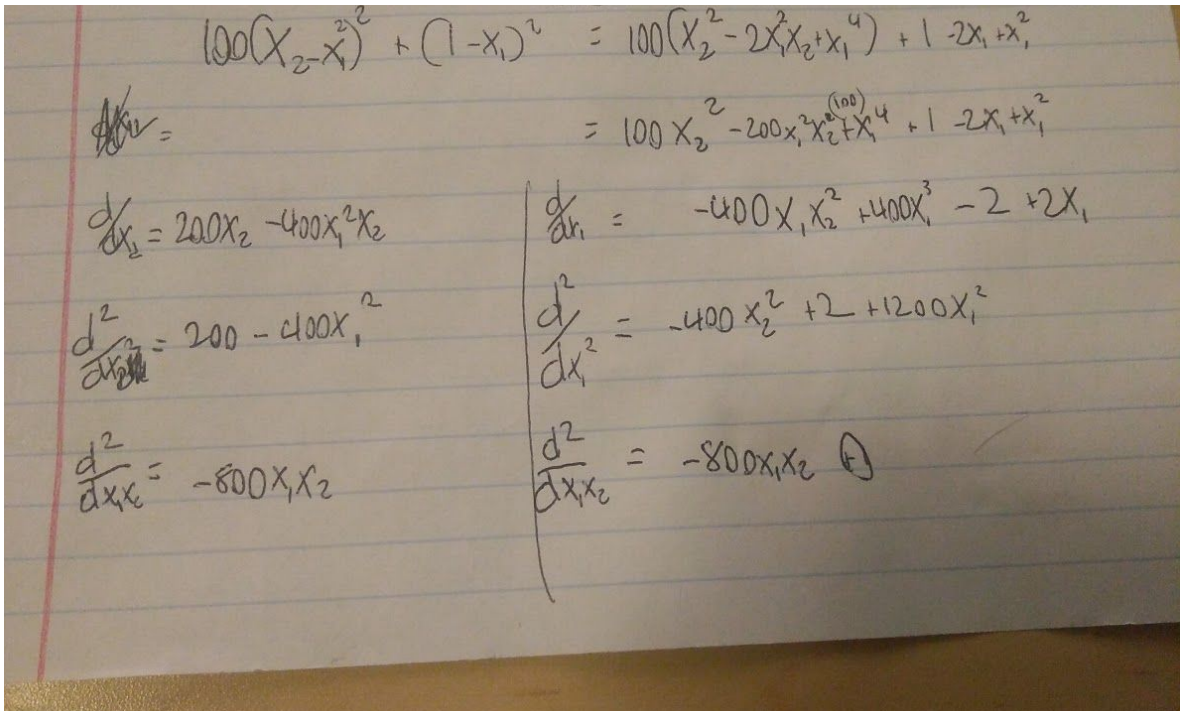
3.a
Summing (y^-y) ^2
We take

(y^-y)'(y^-y)
Expanding and substituting y^ - Xw
y'y -y'Xw - w'X'y + wX'Xw
Taking the derivative d/dw

-X'y -X'y + X'Xw + X'Xw
-X'y + X'Xw

And taking the derivative d/dw again
X'X
Which is symmetric and positive semi-definite.

3.b
f(x) = 100(x2 - x1^2)^2 + (1-x1)^2



When putting the values in a matrix and taking the determinant

| 802 -800 |
| -800 -200 | determinant is -160400 + 640000 =479,600
Which is positive, showing that the value x*= [1;1] is a minimum