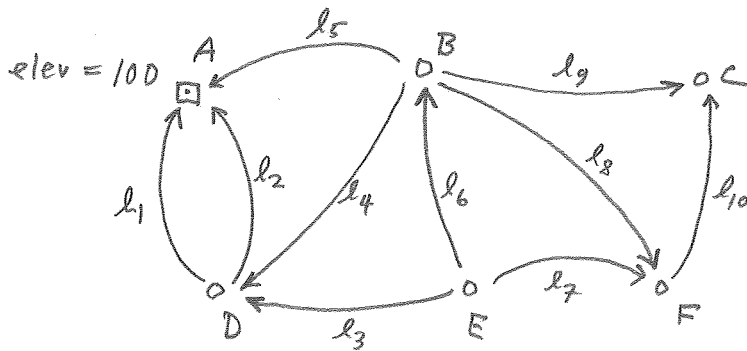


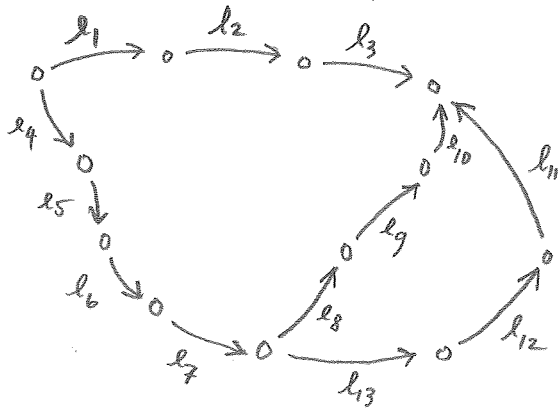
1. Solve the LS problem for the level network by Indirect Observations. Observations have equal precision and are uncorrelated.



#	l
1	4.05
2	3.90
3	9.03
4	3.98
5	7.92
6	5.04
7	5.88
8	1.06
9	3.02
10	1.91

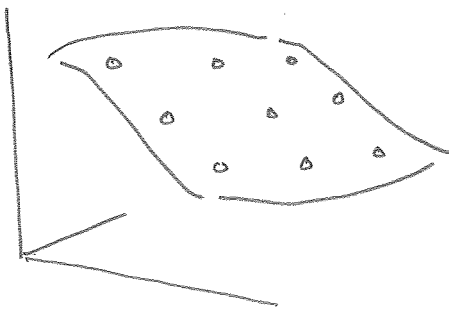
→  
points up hill  
  
point A fixed at elev = 100.0

2. Solve the LS problem for the level network by Observations Only. Observations have equal precision and are uncorrelated.



#	l	#	l
1	2.07	8	0.89
2	3.01	9	2.99
3	4.98	10	1.05
4	0.96	11	2.06
5	0.94	12	0.93
6	1.10	13	2.01
7	1.97		

3. Fit the given data to the surface model by LS. X, Y constant, Z observed. Equal precision, uncorrelated.

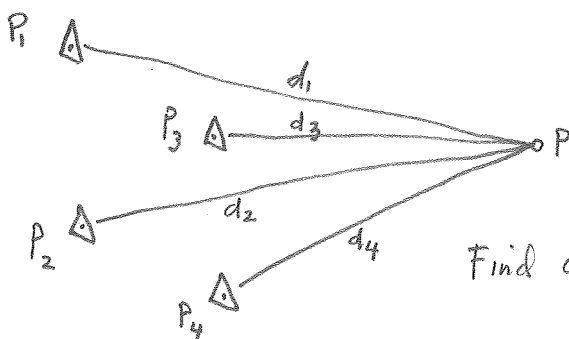


$$Z = q_0 + q_1 X + q_2 Y + q_3 XY$$

Solve by Indirect Observations

#	x	y	z
1	1	1	1.26
2	2	1	1.49
3	3	1	1.65
4	1	2	1.40
5	2	2	1.70
6	3	2	1.90
7	1	3	1.58
8	2	3	1.82
9	3	3	2.12

4. 4 distances are observed from 4 control points to an unknown point



#	Px	Py	Pz
1	10	5	20
2	12	7	3
3	20	6	18
4	18	3	2

#	d	σ
1	27.40	.02
2	24.20	.02
3	25.81	.03
4	28.32	.01

Find coordinates of point P by LS using Ind. Obs.