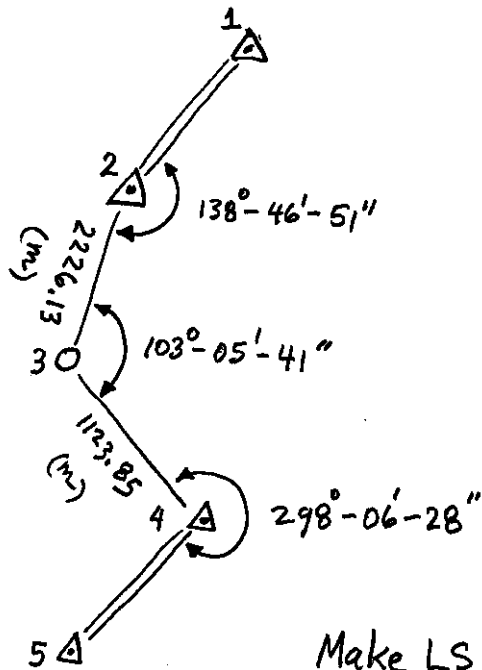


CE 597 z Homework 3
Assigned Thurs. 25 Oct, Due Thurs 8 Nov.

1.)



Point	X (m)	Y (m)
1	3915.74	9228.31
2	2873.49	8492.34
3	?	?
4	3356.20	5824.15
5	2197.94	5005.78

$$\sigma_{\text{angle}} = 5''$$

$$\sigma_{\text{distance}} = 0.02 \text{ m} + 3 \text{ PPM}$$

Make LS adjustment of the traverse.
Make global test at $\alpha = 0.01$

Show a 99% confidence region for the unknown point.

2.) Determine the parameters of the 7-parameter transformation:

$$\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \lambda M \begin{pmatrix} X \\ Y \\ Z \end{pmatrix} + \begin{pmatrix} t_x \\ t_y \\ t_z \end{pmatrix}$$

for the following points:

	X	Y	Z	x	y	z
1.	100.00	20.00	5.00	97.03	21.82	3.20
2.	120.00	20.00	5.00	114.00	21.53	4.09
3.	120.00	35.00	5.00	114.28	34.72	2.98
4.	100.00	35.00	5.00	97.31	34.52	2.09

X, Y, Z, x, y, z all observed with $\sigma = .02$

Make global test at $\alpha = .05$. Construct a 50% confidence interval for the scale, λ .