

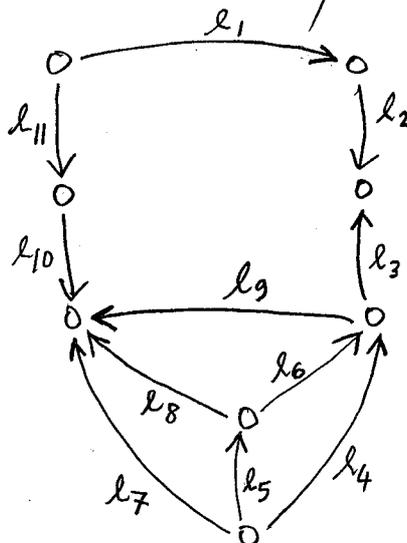
## CE 597 Homework 2

assigned Tuesday 10 Sep., due 1 week: Tuesday 17 Sep.

Use sketch and data for level network for all of the problems.

(arrow points up hill)

$l_i$  are elevation differences.



$$\vec{l} = \begin{bmatrix} 7.8 \\ 2.2 \\ 3.3 \\ 3.1 \\ 1.1 \\ 1.8 \\ 5.0 \\ 3.6 \\ 1.9 \\ 5.8 \\ 2.9 \end{bmatrix}$$

1. Assume observations have equal precisions and are uncorrelated. Make least squares solution by observations only using the manual approach (use Matlab for normal equations).
2. Assume  $\sigma = 0.1$  for  $l_2, l_3, l_5$ , and  $\sigma = 0.25$  for others. Make least squares solution by observations only using the matrix approach.
3. Use stochastic assumption of (2) and make LS solution by indirect observations using the matrix approach. Assume absolute elevation of point at upper left is 0.000.