1. Fit parabola of form $y = a_0 + a_1 x + a_2 x^2$ to the given data.
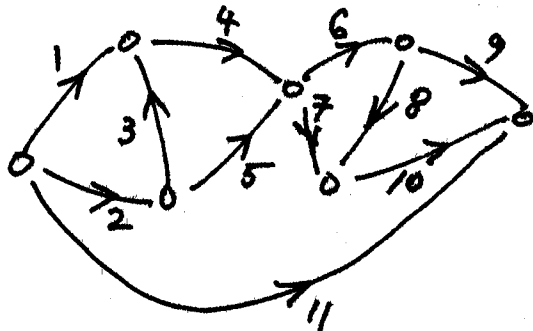   X: constant, y: observation.

X	1	2	3	4	5
Y	1.74	2.79	4.33	6.16	8.51

   use <u>indirect</u> <u>observations</u>.

1(a) Do again with $\sigma_1, \sigma_2, \sigma_3 = 0.02$, $\sigma_4, \sigma_5 = 0.04$

2. Show model elements n, n_0, r for the level network,

3. Three points are in a horizontal network. We observe coordinate differences between the points:
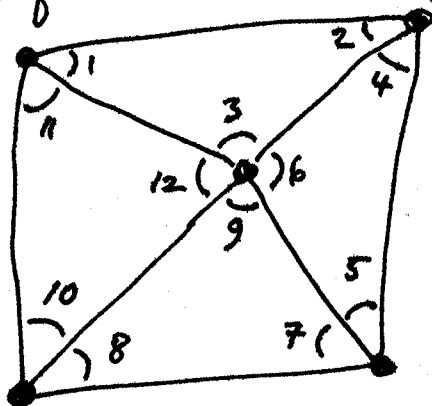
   $$dx_{ij} = x_j - x_i \quad , \quad dy_{ij} = y_j - y_i$$

   $dx_{12} = 5.2$, $dx_{13} = 24.7$, $dx_{23} = 19.9$, $dy_{12} = 12.1$,
   $dy_{13} = 4.4$, $dy_{32} = 7.9$

   Adjust using <u>observations</u> <u>only</u> with Lagrange multipliers.

4. We measure angles in the given horizontal network. Show the model elements n, n_0, r and write conditions equations for method of <u>observations</u> <u>only</u>.

   check to confirm your coefficient matrix (extracted from condition equations) has full rank.