Oct 28, 09 — Data 1 HW #4, due Wed 4th, 1 week.

1. Make 2 matlab functions:

(a) $\left[F \ \frac{\partial F}{\partial x_i} \ \frac{\partial F}{\partial y_i} \ \frac{\partial F}{\partial x_j} \ \frac{\partial F}{\partial y_j}\right]$ = distance2d(obs, i, j, X, Y)

X, Y: arrays of point coordinates

(b) $\left[F \ \frac{\partial F}{\partial x_i} \ \frac{\partial F}{\partial y_i} \ \frac{\partial F}{\partial x_j} \ \frac{\partial F}{\partial y_j} \ \frac{\partial F}{\partial x_k} \ \frac{\partial F}{\partial y_k}\right]$ = angle2d(obs, i, j, k, X, Y)

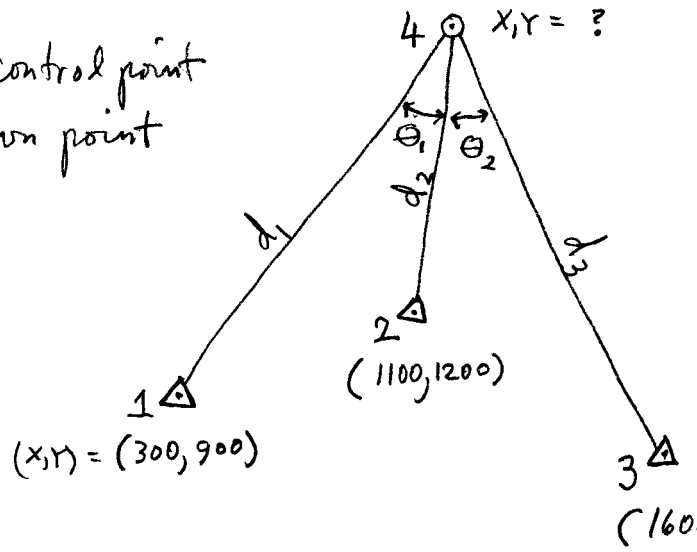
X, Y: as before

note filename must be same as function name.

Use functions to generate matrix elements for the (indirect obs.) condition equations for the network:

△ = fixed control point

⊙ = unknown point




$d_1$ = 1345.40 m, σ = 0.05 m

$d_2$ = 707.08 m, σ = 0.05 m

$d_3$ = 1360.18 m, σ = 0.05 m

$\theta_1$ = 33° 51′ 30.6″, σ = 10″

$\theta_2$ = 25° 13′ 55.1″, σ = 10″

- make adjustment
- make global test
- make 90% conf. intervals for $\mu X_4$, $\mu Y_4$
- make 90% conf. ellipse for $(\mu X_4, \mu Y_4)$
- make 90% conf. circle for $\mu X_4$, $\mu Y_4$
- write code for this particular problem
- test for convergence

This is first step towards generic 2D network adjustment