Photo 1 HW2 assigned 24 jan 2013 due 5 feb 2013

Resection & Intersection

for a camera with $x_0 = 0$, $y_0 = 0$, $f = 152.4$ mm

(a) make a space resection using data:

#	x_{obs} (mm)	y_{obs}	X (m)	Y	Z
1	-77.667	-97.007	2150.8	10077.2	203.5
2	-72.762	-3.299	2155.3	10375.5	198.2
3	-71.985	86.212	2152.7	10668.1	205.7
4	39.628	-95.267	2528.0	10080.6	201.4
5	39.786	-8.508	2525.6	10364.4	201.8
6	38.931	82.168	2520.3	10671.0	199.6

use as initial approximations $\omega \approx 0°$, $\varphi \approx 0°$, $\kappa \approx 0°$

$X_L \approx 2380$, $Y_L \approx 10380$, $Z_L = 700$

(b) use results of part (a) (photo 1) plus photo 2 orientations;

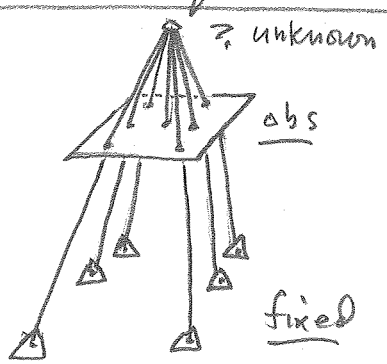
$\omega = -2.0°$, $\varphi = 1.0°$, $\kappa = 0.5°$

$X_L = 2678.8$, $Y_L = 10380.3$, $Z_L = 707.1$

and, photo 1 obs. $x_1 = 62.940$, $y_1 = -50.435$, and
photo 2 obs. $x_2 = -20.250$, $y_2 = -40.252$

to obtain object coordinates (X, Y, Z) by intersection, get approximation using fixed z formula.

(a)



(b)