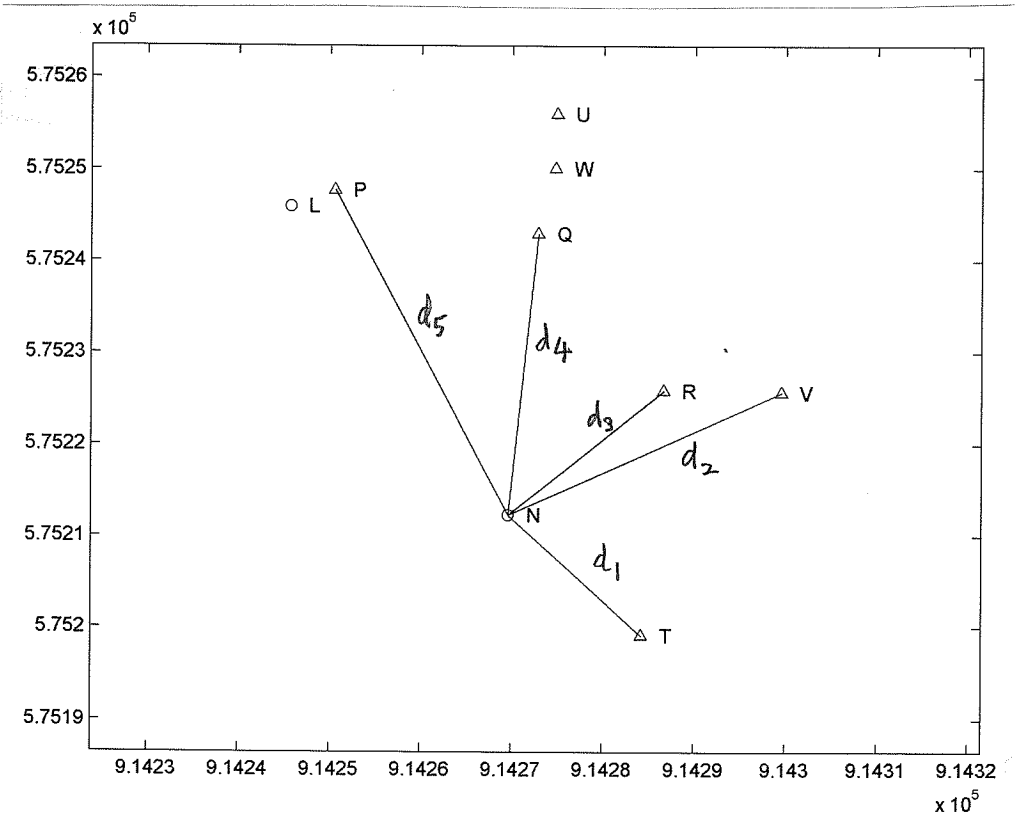
Homework 3 assigned 30 Sep. 2019

1. Use indirect observations to solve the LS problem with 5 measured distances.



$d_1 = 19.715$ m $\quad \sigma_d = 0.02$

$d_2 = 32.803$

$d_3 = 21.788$

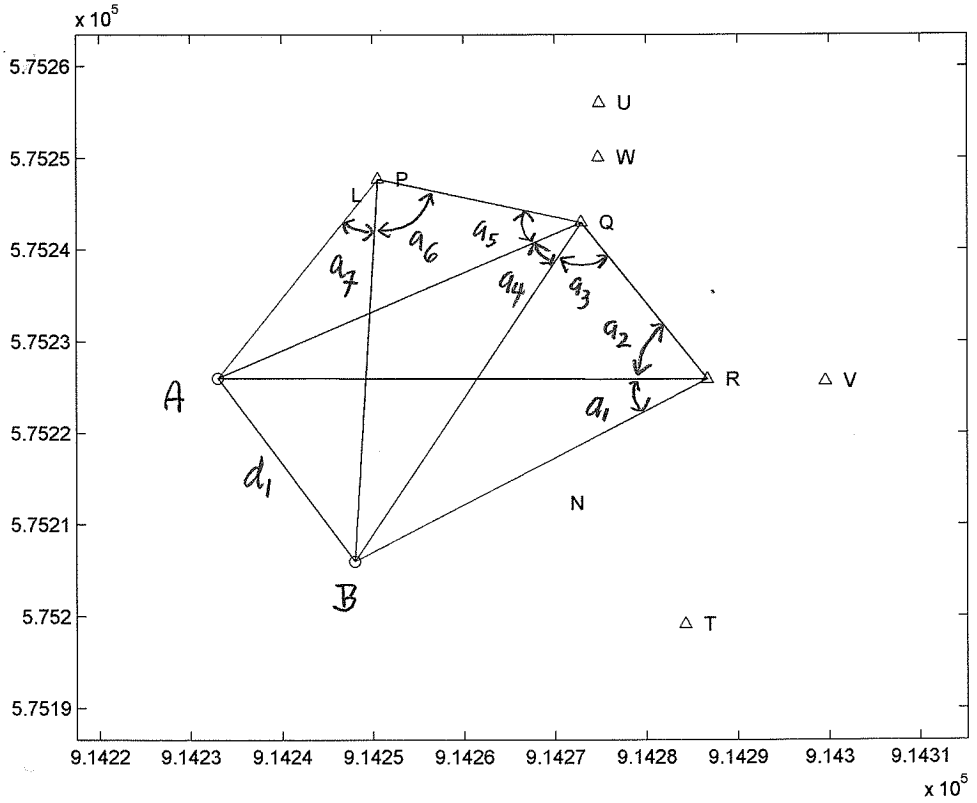
$d_4 = 30.786$

$d_5 = 40.193$

station	E (m)	N(m)	Elev(m)
L			
N			
P	914250.561	575247.737	190.488
Q	914272.880	575242.987	190.116
R	914286.680	575225.907	190.037
T	914284.272	575199.176	189.970
U	914274.881	575256.022	190.235
V	914299.563	575225.693	190.016
W	914274.735	575250.065	190.025

Coordinates are Indiana State Plane West NAD83, meters. Elevation is NAVD88, meters.

2. Use indirect observations to solve the LS problem for the positions of points A and B, with 7 angle observations and 1 distance observation.



a_1: 27° 21′ 06″ $\quad \sigma_a = 02'$

a_2: 50° 55′ 29″

a_3: 72° 50′ 11″

a_4: 33° 02′ 38″

a_5: 35° 02′ 15″

a_6: 81° 29′ 26″

a_7: 35° 26′ 34″

d_1: 25.009 m $\quad \sigma_d = 0.02$ m