



Solutions #4

Dear CVG 2171 students,

Below are the solutions to the last assignment. You may contact your TA if anymore explanation is needed.

1-

10"

2-

2nd order, class II; $c = 10''/\sqrt{6} = 4.1''$; allowable by 2nd order, class II is 4.5''

3-

Misclosure = -10"; Correction = +2" per angle

Balanced angles: $A = 105^{\circ}13'16''$; $B = 92^{\circ}36'08''$; $C = 67^{\circ}15'24''$; $D = 217^{\circ}24'32''$;
 $E = 57^{\circ}30'40''$.

Azimuths: $AB = 122^{\circ}32'16''$; $BC = 35^{\circ}08'24''$; $CD = 282^{\circ}23'48''$; $DE = 319^{\circ}48'20''$; $EA = 197^{\circ}19'00''$

4-



- (a) Preliminary azimuths are listed below.
 (b) Unadjusted latitudes and departures are listed below.
 (c) **0.0235 m**
 (d) **1:78,000**

From WolfPack:

Station	Obs. Angle	Adj. Angle
A	120°07'50"	120°05'49"
B	91°57'50"	91°57'49"
C	121°44'06"	121°44'05"
D	82°02'08"	82°02'07"
E	124°10'11"	124°10'10"
Misclosure	5"	

Course	Length	Azimuth	Dep (m)	Lat (m)
AB	2862.392	179°50'39"	7.7851	-2862.3814
BC	4189.033	91°48'28"	4186.9481	-132.1491
CD	3815.353	33°32'33"	2108.1938	3180.0059
DE	3545.450	295°34'40"	-3288.1961	1573.8718
EF	3490.014	239°44'50"	-3014.7128	-1758.3244
Sum	1843.455		0.0182	1.0228

Linear misclosure 1.0229
Relative Precision 1:17,600

5- Solution from the WolfPack



Course	Length	Bearing	Unbalanced	
			Dep	Lat
1-2	403.73	N8°17'02.0"E	58.169	399.518
2-3	622.63	N87°02'05.0"E	621.796	32.209
3-4	653.16	S14°47'06.0"W	-166.682	-631.534
4-1	550.84	N68°43'20.0"W	-513.290	199.894
Sum =	2,230.36		-0.007	0.087

Balanced			Coordinates	
Dep	Lat	Point	X	Y
58.170	399.502	1	10,000.00	5,000.00
621.798	32.185	2	10,058.17	5,399.50
-166.680	-631.559	3	10,679.97	5,431.69
-513.289	199.873	4	10,513.29	4,800.13

Linear misclosure = 0.087
 Relative Precision = 1 in 25,600

Area: 302,000 sq. ft.
 6.933 acres {if distance units are feet}

Adjusted Observations

Course	Distance	Bearing
1-2	403.71	N8°17'04"E
2-3	622.63	N87°02'13"E
3-4	653.18	S14°47'03"W
4-5	550.83	N68°43'27"W

Good luck,