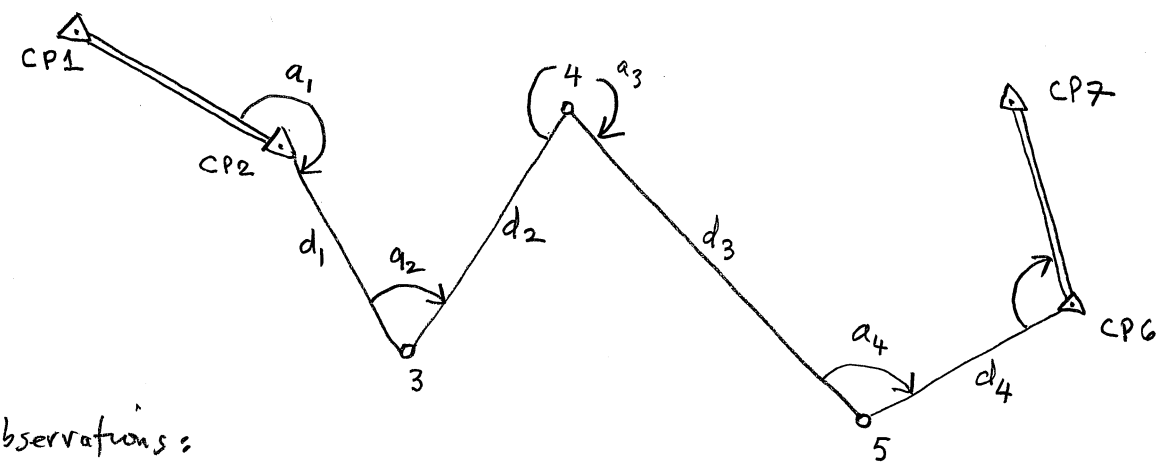
ce 597 homework ~~5~~ 4

assigned 5 Oct. 2018 friday, due 15 oct. monday

1.



observations:

a_1	234° 23′ 58″	$\sigma_a = 55''$
a_2	51° 57′ 43″	
a_3	292° 24′ 58″	
a_4	101° 45′ 02″	
a_5	81° 21′ 43″	

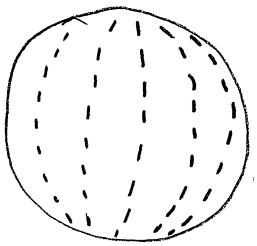
d_1	57.546 m	$\sigma_d = .015$ m
d_2	73.658 m	
d_3	92.219 m	
d_4	61.104 m	

coordinates

	X	Y	
CP1	1700.000	400.000	(m)
CP2	1736.000	388.000	
CP6	1902.000	338.000	
CP7	1876.000	383.500	

Adjust the traverse data by LS.
Estimate parameters for X_3, Y_3, X_4, Y_4, X_5, Y_5

2.



Simulated laser scan data on a sphere can be found in accompanying file sph2dat.txt (fields are X Y Z (meters))

$\sigma_x = \sigma_y = \sigma_z = 2.5$ mm

in matlab you may use command sequence

```
load sph2dat.txt;
plot3(sph2dat(:,1), sph2dat(:,2), sph2dat(:,3), '.');
```

to view the data (spin with "↻" icon)

there should be 156 points, adjust via the LS mixed model.
Estimate parameters for center point X_c, Y_c, Z_c and radius R.