

MATHEMATICS

Level Three

Residuals

15 survey baseline measurements were taken to calculate the error caused by the instrument. Using the table below answer the following questions.

Obs	x	Residual v	V ²
1	266.304	-0.0035	
2	266.318	+0.0105	
3	266.312	+0.0045	
4	266.304	-0.0035	
5	266.313	+0.0055	
6	266.307	-0.0005	
7	266.309	+0.0015	
8	266.303	-0.0045	
9	266.301	-0.0065	
10	266.305	-0.0025	
11	266.302	-0.0055	
12	266.310	+0.0025	
13	266.314	+0.0065	
14	266.307	-0.0005	
15	266.303	-0.0045	
Σ			

1.
 - a. Calculate Σx
 - b. Calculate Σv
 - c. Calculate Σv^2
 - d. Calculate the mean of x
 - e. Calculate the Standard deviation of x
 - f. Calculate the standard deviation of the mean of x
 - g. Calculate the probable error (i.e. at 50%)
 - h. Calculate 90% confidence interval for x
 - i. Calculate a 95% confidence interval level for x
2. Calculate the flying height (H), given the photo scale is at 1:20000, focal length is 153mm

