1) Calculate ϑ from the 2ϑ values given in the second column.

2) Calculate $\sin^2\vartheta$. Keep in mind that Excel expects ϑ to be in radians.

3) Enter your educated guess for the common factor here. If your guess is right all the multipliers in the next column will be an integer number, or at least close to an integer.

4) Once you are satisfied with your common factor enter the closest integer to the multipliers in the previous column here.

5) Enter integers in the h, k, and l columns such that $h^2+k^2+l^2$ equals the numbers you entered in the *closest integer* column.

6) Here is where you calculate the actual common factor based on your guess in step 3. Divide $\sin^2\vartheta$ by the corresponding $h^2+k^2+l^2$ number from the colum to the left.

7) Solve for the lattice parameter *a* from $\left(\lambda/2a\right)^2$ for each X-ray peak. Then calculate the mean and the standard deviation of the mean.

common factor 1

No.	2ϑ	ϑ	$\sin^2\vartheta$	**common factor**	**multiplier**	**closest integer**	h	k	l	$h^2+k^2+l^2$	$\left(\lambda/2a\right)^2$	a [A]
1	32.204			1.000000	0.000					0		
2	37.347			1.000000	0.000					0		
3	53.855			1.000000	0.000					0		
4	64.152			1.000000	0.000					0		
5	67.377			1.000000	0.000					0		
6	79.688			1.000000	0.000					0		
7	88.529			1.000000	0.000					0		
8	91.462			1.000000	0.000					0		
9	103.345			1.000000	0.000					0		

average a= A

stdev of mean= A