Given $d = \alpha\beta$ --- ①

Comparing eqn① to $y = mx + c$

$\log 0' = \log\alpha + t\log\beta$

where ; $a_0 = \log\alpha$, $a_1 = \log\beta$

	$y = \log d$	$t = x$	xy	d(cm)	x^2	y^2
1	0.30102999.6	0	0	0	0	0.09061905
2	0.698970004	1	0.698970004	1	1	0.488559067
3	1.278153601	2	2.557507302	2	4	1.635210772
4	1.69897004	3	5.096910013	3	9	2.88649976
5	2.17892947	4	8.715907789	4	16	4.749940537
6	2.672097850	5	13.36048979	5	25	7.140106962
7	3.1568519091	6	18.9411142	6	36	9.96713925
8	3.6543690 91	7	25.58058364	7	49	13.35441345
9	4.111800007	8	32.8944006	8	64	16.9068993
10	4.61416391	9	44.5269532 1	9	81	21.28997336
11	5.[illegible]	10	50.45405135	10	100	25.0611297.

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$\sum xy = a_0 \sum x + a_1 \sum x^2$

$199.5268839 = a_0(55) + a_1(385)$

Solving eqn ① and ②

$$a_0 = \frac{\begin{vmatrix} 29.41133046 & 55 \\ 199.5268839 & 385 \end{vmatrix}}{\begin{vmatrix} 11 & 55 \\ 55 & 385 \end{vmatrix}}$$

$$= \frac{(29.41133046 \times 385) - (55 \times 199 \times 8768838)}{(11 \times 385) - (55 \times 55)}$$

$a_0 = 0.27511$

$$a_1 = \frac{\begin{vmatrix} 11 & 29.41133046 \\ 55 & 199.876835 \end{vmatrix}}{\begin{vmatrix} 11 & 55 \\ 55 & 385 \end{vmatrix}}$$

$= (11 \times 199.8268835) - (29.4113046 \times 55)$

For manual method: $R = 0.9998448312$, $R^2 = 0.9996896864$

For matlab: $R = 0.9998$, $R^2 = 0.9997$

For excel: $R = 0.999844832357763$, $R^2 = 0.999689688782257$

d) From the observation for all the methods used to solve the Correlation Coefficient and its square, it can be seen that