Let e_i be the extention at i^{th} reading where each reading for N is L_i.

$e_{i+1} - e_i = 0.1\ mm$ —— (1)

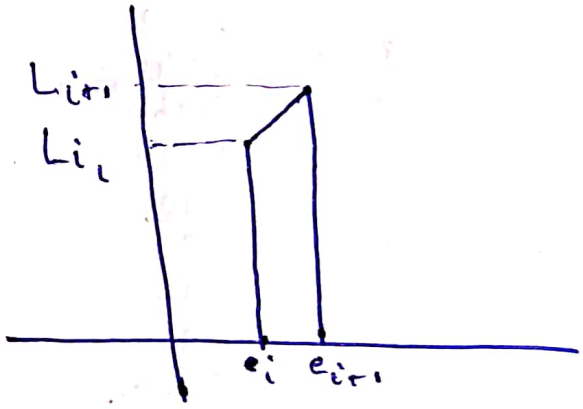
Total work done = Area under the curve of load vs Extension

∴ = Sum of work done in each reading

= Sum of trapezoids's area for each reading

$$= \sum_{i=0}^{N-1} \frac{(L_{i+1} + L_i)}{2} \times (e_{i+1} - e_i)$$

$$= \sum_{i=0}^{N-1} \frac{(L_{i+1} + L_i)}{2} \times 0.1$$



(Using excel formulas and ~~data~~ entering data of reading there)

For steel : Work done = 37.981 Joules

For Aluminium : Work done = 21.067 Joules

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