HW-2

CPTS 350

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'n' digits multiplied by 'n' digits can be written as

$$\begin{array}{l} nnnn \ldots nnnn \\ \times\ nnnn \ldots nnnn \end{array}$$

By writing it this way we are calculating (n^2)

we can simplify this by grouping 'n' digits

$$\begin{array}{l} (nn)(nn) \ldots (nn)(nn) \\ \times\ (nn)(nn) \ldots (nn)(nn) \end{array}$$

by doing it this way we are calculating $\left(\frac{n^2}{2}\right)$, which can also be written as $\left(\frac{n^2}{4}\right)$

by doing this we are making the multiplication atleast two times faster.

By grouping these integers we are making them larger, which is making them ~~to~~ atleast two times faster ~~and making~~ ~~the input~~ than the ~~or~~ original (0-a) and making the input to $\log_{100} x$. this proves that by grouping we are making it atleast two times faster and that the Blum's theorem works.