PP39361

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If $m, n > 0$ and $x \geq 0$ then:

$$e^{mx} + e^{n[x]} + e^{n\{x\}} \geq 3 + (m+n)x$$

Solution by Rovsen Pirguliyev - Azerbaijan.
Using $e^x \geq 1 + x$ for all $x \geq 0$ and $x = [x] + \{x\}$, we have:

$$LHS \geq mx + n[x] + n\{x\} + 1 + 1 + 1 = 3 + mx + n(\overbrace{[x] + \{x\}}^{x}) = 3 + (m+n)x$$

□

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