Strange property of Mobius function

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Abstract

For mobius function, there is some strange reration. I intend to test one theorem.

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Theorem 1.

$$\sum_{n \leq m/n_m 1+1} \mu(n) \approx 0$$

$n_m \geq 3$ satisfies

$$1 \times \sum_{m/2<n\leq m} \mu(n) + 2 \times \sum_{m/3<n\leq m/2} \mu(n) + \cdots + n_m \times \sum_{m/n_m+1<n\leq m/n_m} \mu(n) \approx 0$$

I do not prove this theorem. My aim is to test this theorem for any m.
example:m=10000
$\sum_{m/2<n\leq m} \mu(n) = -25$
$\sum_{m/3<n\leq m/2} \mu(n) = -15$
$\sum_{m/4<n\leq m/3} \mu(n) = 18$

$$-25 - 15 \times 2 + 18 \times 3 \approx 0$$

I get $n_m = 3$

$$\sum_{1<n\leq 2500} \mu(n) = -1$$

example:m=15000

$$-25 + 13 \times 2 + 9 \times 3 - 1 \times 4 - 5 \times 5 \approx 0$$

I get $n_m = 5$

$$\sum_{1<n\leq 2500} \mu(n) = -1$$

example:m=13000

$$7 - 11 \times 2 - 23 \times 3 + 13 \times 4 + 7 \times 5 \approx 0$$

I get $n_m = 5$

$$\sum_{1<n\leq 2166} \mu(n) = -3$$

example:m=40000

$$-36 + 39 \times 2 + 10 \times 3 - 19 \times 4(-3 \times 4) \approx 0$$

I get $n_m = 4$

$$\sum_{1<n\leq 8000} \mu(n) = -1$$