

RPI Students Study Too Much and Never Get Enough Sleep

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Abstract

As every RPI student is probably aware, there never seems to be a shortage of material to study – or enough time in the day to get a good night’s sleep. To our knowledge, however, neither statement has been proven rigorously. A novel proof is presented, including several lemmas and puns which may be of use in future mathematical humor.

1. Too Much Studying

This can be stated most succinctly as:

$$\lim_{u \rightarrow r\pi} \int t(u) dy = \infty \quad (1)$$

The proof is trivial: studying is by its very nature a self-directed activity with no end in sight. Even after the semester is over, there is nothing stopping one from reviewing the textbooks.

2. Not Enough Sleep

Restating the obvious:

$$\lim_{u \rightarrow r\pi} \int l e^2 p = 0 \quad (2)$$

Although calculating the exact amount of sleep a given RPI student gets is computationally intractable, one can establish an upper bound by using the expression

$$t_{total} = \sum_{k=1}^n t(k) \quad (3)$$

where n is the total number of activities the student engages in, and t_{total} is the total time spent at RPI.

Subtracting time spent studying:

$$t_{total} = \left[\sum_{k=1}^{n-1} t(k) \right] - t_{study} \quad (4)$$

But, by (1), t_{study} increases without bound as u goes to $r\pi$. Thus, we get:

$$\lim_{u \rightarrow r\pi} \left[\sum_{k=1}^{n-1} t(k) \right] = 0 \quad (5)$$

Since t_{sleep} is a term of the summation above, and all terms are ≥ 0 , we can conclude (2) must be correct.

3. Future Research

The expression

$$\binom{\sqrt{-1}}{u} \quad (6)$$

shows major potential for use in math jokes. The literal interpretation,

$$\frac{(\sqrt{-1})!}{u! (-u + \sqrt{-1})!} \quad (7)$$

is completely nonsensical, as the factorial of a complex number is undefined. At the same time, the phrase “I choose you” is legal English and occurs often in normal speech.