2024 Kim Iles Mathematical Challenge

Theoretical Question

Let I_i be the identifier of the stand i of forest management unit (sometimes known as forest estate). One can represent such ids with a finite series of integers. Assuming that the ids I_i are independent random variables, shows that the series of ids can be represented as a homogeneous Markov chain.

Applied Question

The young assistant cruiser had a simple task. There were a number of circular cross sections of stumps, and the senior cruiser wanted to know which stump had the **greatest area of sapwood** on those cross sections.

The young assistant has only three tools available: a **calculator**, a **Biltmore Stick**, and a **Diameter Tape**. How: 1) can the assistant most easily answer the question for these stumps, and 2) what is the *ranking* of sapwood areas on the stumps?

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