Name _____ Date _____ Class _____

MATH LAB

Analyzing the Rate of DNA Replication

Background

Cancer is a disease caused by cells that divide uncontrollably. Scientists studying drugs that prevent cancer often measure the effectiveness of a drug by its effect on DNA replication. During normal DNA replication, nucleotides are added at a rate of about 50 nucleotides per second in mammals and 500 nucleotides per second in bacteria.

Analysis

1. Calculate the time it would take a bacterium to add 4,000 nucleotides to one DNA strand undergoing replication.
2. Calculate the time it would take a mammalian cell to add 4,000 nucleotides to one DNA strand undergoing replication.
3. How would the total time needed to add the 4,000 nucleotides be affected if a drug that inhibits DNA polymerases was present?

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