
Large Time Asymptotic Behavior for the Solution of a Disease Model

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For a kind of disease model, it is well-known that the solution tends to the stationary solution as time tends to infinity by numerical methods. Based on this observation, we study the converge rate of the solution. It is shown that if the varying parameters tend to constants exponentially as time tends to infinity, the solution also tends to the stationary solution exponentially. The results is obtained by writing the problem into a system of integral equations and by using a nonlinear Gronwall's inequality.

Keywords: disease model; large time behavior; stationary solution.