Consider the HIV model:

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(6.1) where T is the number density of the CD4 T + cells, T^\* is the number density of the infected CD4^\* T + cells, and V denotes the number density of the HIV viruses.

Tasks 1. Solve model (6.1) with corresponding initial conditions by the Runge-Kutta method. Draw the graphs for T(t), T^\*(t) and V(t).

2. Solve model (6.1) with corresponding initial conditions using the Euler method. Compare the results with those obtained by the Runge-Kutta method. Plot the results.

3. Estimate the basic reproduction number R0 . Show that the disease-free equilibrium (DFE) of (6.1) is asymptotically stable.

Note: all the model coefficients have been described in Lecture 6. Select the appropriate values for the given coefficients.