

True;

When solving a differential equation numerically,  $\Delta t$  needs to be small enough so that the physical dynamics of the system is well captured.

If we use numerical integrators like Euler, RK4 etc., they have global errors of  $O(\Delta t)$ ,  $O(\Delta t^4)$  and so on. The smaller the  $\Delta t$ , the smaller will be the global error, depending on the method of integration chosen.

And,  $\Delta t$  needs to be small relative to the shortest timescale.

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