

How does it look here for $\lambda < 0$?

$y(t)$ decreases

y_j ? decreases (does not depend on the step size h !)

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Def.: A one-step method applied to the DTE can be written as

$$y_{j+1} = g(z) y_j$$

where $z = h\lambda$ and $g(z)$ is called the stability function (SF) of the method

Ex.: (13) EE : $g(z) = 1 + z$

IE : $g(z) = 1 / (1 - z)$

(14) EM : $g(z) = 1 + z + \frac{z^2}{2}$