

We want at least that the approx. solution follows the trend of the exact one!

decay!

For the practically meaningful case  $\lambda < 0$  we demand the approx. solution decreases in magnitude:

$|y_{j+n}| < |y_j|$  (Absolute stability)  
or simply  
A-stability (AS)

So with  $y_{j+n}$  (SF)

$|y_{j+n}| = |g(z) y_j| = |g(z)| |y_j| < |y_j|$

we get a requirement on the SF

$|g(z)| < 1$

This motivates the following definition