Then we can write

$$\varepsilon^{(k)} = C \cdot \left(\varepsilon^{(k-1)}\right)^p$$

$$\varepsilon^{(k+1)} = C \cdot \left(\varepsilon^{(k)}\right)^p$$

Taking the log on both sides gives

$$\log\left(\varepsilon^{(k)}\right) = \log(C) + p \cdot \log\left(\varepsilon^{(k-1)}\right)$$

$$\log\left(\varepsilon^{(k+1)}\right) = \log(C) + p \cdot \log\left(\varepsilon^{(k)}\right)$$

This can be solved for C and p:

$$p = \frac{\log\left(\varepsilon^{(k+1)}\right) - \log\left(\varepsilon^{(k)}\right)}{\log\left(\varepsilon^{(k)}\right) - \log\left(\varepsilon^{(k-1)}\right)}$$

$$C = \frac{\varepsilon^{(k+1)}}{\left(\varepsilon^{(k)}\right)^p} = \frac{\varepsilon^{(k)}}{\left(\varepsilon^{(k-1)}\right)^p}$$

<u>Ex.:</u> (2) Determine C & p for the fixed-point iterations from Ex. (1) $\rightsquigarrow$ Slides

<u>Catch:</u> How to compute $\varepsilon^{(k)} = |x^{(k)} - \underbrace{x^*}_{=?}|$?