

Linearización

$$\begin{array}{l}
 y_{n+1} = \sqrt{y_n} \\
 \text{Cambio de variable} \\
 u_n = \ln(y_n) \\
 u_{n+1} = \ln(y_{n+1})
 \end{array}
 \left\{
 \begin{array}{l}
 e^{u_{n+1}} = \sqrt{e^{u_n}} \\
 e^{u_{n+1}} = e^{u_n/2}
 \end{array}
 \right\}
 u_{n+1} = \frac{u_n}{2}$$

$$\begin{aligned}
 y_n y_{n+2} &= y_{n+1}^2 \\
 y_{n+2} &= \frac{y_{n+1}^2}{y_n}
 \end{aligned}$$

Prueba ALF:

Cambio

$$u_n = \ln(y_n)$$

$$\Rightarrow u_{n+1} = \ln(y_{n+1})$$

$$u_{n+2} = \ln(y_{n+2})$$

$$\left\{
 \begin{array}{l}
 e^{u_n} \cdot e^{u_{n+2}} = e^{2u_{n+1}} \\
 \text{Simplificando} \\
 \boxed{u_n + u_{n+2} = 2u_{n+1}}
 \end{array}
 \right.$$

$$\begin{array}{l}
 y_{n+2} = \frac{y_n y_{n+1}}{y_n + y_{n+1}} \\
 u_n = \frac{1}{y_n}
 \end{array}
 \left\{
 \begin{array}{l}
 \boxed{\frac{1}{u_{n+2}} = \frac{1}{\frac{1}{u_n} + \frac{1}{u_{n+1}}} = \frac{1}{\frac{u_n \cdot u_{n+1}}{u_{n+1} + u_n}} = \frac{1}{u_{n+1} + u_n}} \\
 \text{Que equivale a} \\
 u_{n+2} = u_{n+1} + u_n
 \end{array}
 \right.$$

De vuelta a ejers

$$A_n = A_{n-1} - a A_{n-1}$$

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$$B_n = B_{n-1} - b B_{n-1} + a A_{n-1}$$