§ sine-Gordon equation 用 B$\ddot{a}$*cklund* tranform 從一已知解求新解

$$\partial_{\xi}(\phi_1-\phi_0)=2\lambda\sin(\frac{\phi_1+\phi_0}{2})$$

$$\partial_{\eta}(\phi_1+\phi_0)=\frac{2}{\lambda}\sin(\frac{\phi_1-\phi_0}{2})$$ where λ is a spectral parameter

Let $\phi_0=0$ ，find ϕ_1

1. DeepSeek $\phi_1(\xi,\eta)=4\arctan(e^{\lambda\xi+\eta/\lambda})$
2. chatGPT $\phi_1(\xi,\eta)=4\arctan(Ke^{\lambda\xi+\eta/\lambda})$
3. Perplexity $\phi_1(x,t)=4\arctan(e^{x-vt/\sqrt{1-v^2}})$
4. Gemini 無法辨識題目