

ماتریس زیر را در نظر بگیرید

$$\begin{aligned}
 P(\lambda) &= \det(\lambda I - J_{\circ}) \\
 &= \begin{vmatrix} \lambda + (\nu + u_{\mathfrak{I}} + \lambda_{\mathfrak{F}} - \nu p_{\mathfrak{T}}) & \lambda_{\mathfrak{F}} - \nu p_{\mathfrak{T}} & \rho S_{\circ} + \lambda_{\mathfrak{F}} - \nu p_{\mathfrak{T}} & \lambda_{\mathfrak{F}} + \nu p_{\mathfrak{I}} - \nu p_{\mathfrak{T}} + \theta \rho S_{\circ} \\ \circ & \lambda + (\nu + \lambda_{\mathfrak{I}}) & -\rho S_{\circ} & -\rho \theta S_{\circ} \\ \circ & -\lambda_{\mathfrak{I}} & \lambda + (\nu + \lambda_{\mathfrak{T}}) & \circ \\ \circ & \circ & -p_{\mathfrak{T}} \lambda_{\mathfrak{T}} & \lambda + (\nu + \lambda_{\mathfrak{T}} + u_{\mathfrak{T}} - \nu p_{\mathfrak{I}}) \end{vmatrix} \\
 P(\lambda) &= (\lambda + l_{\circ})(\lambda^{\mathfrak{T}} + l_{\mathfrak{I}} \lambda^{\mathfrak{T}} + l_{\mathfrak{T}} \lambda + l_{\mathfrak{T}})
 \end{aligned}$$