

$$\mathbf{A}(\boldsymbol{\theta}) = \frac{\partial}{\partial \boldsymbol{\theta}^T} \gamma(\boldsymbol{\theta}) = \begin{bmatrix} \boxed{\begin{matrix} 1 & 0 \\ 2\mu & 1 \end{matrix}} \\ 3(\mu^2 + \sigma^2) & 3\mu \end{bmatrix}, \quad \det\left(\boxed{\tilde{\mathbf{A}}(\boldsymbol{\theta})}\right) = 1.$$
