

Answer: A similar approach to the previous question: $0 = \frac{\partial^2}{\partial \eta^2} \int p(y; \eta) = \int p(y; \eta) [(y - a'(\eta))^2 - a''(\eta)] dy = \text{Var}(Y|\eta) - a''(\eta)$ using the previous result that $a'(\eta) = E(Y|\eta)$ and the definition $\text{Var}(Y|\eta) = \int p(y; \eta) (y - E[Y|\eta])^2 dy$.