ST 793 Homework 4

Book problems: 5.27, 5.28, 5.39, 5.49, 5.52

Let $Y_1, \ldots, Y_n \sim N(0, \sigma^2)$. Denote $S_n^2 = n^{-1} \sum_{i=1}^n Y_i^2$.

(a) Derive the asymptotic distribution of S_n^2

(b) Find a function $g(\cdot)$ such that $g(S_n^2)$ has asymptotic variance that does not depend on σ^2. Interpret your findings