Statistics 248 - Homework 8 (D. R. Brillinger)

Consider the stationary (Markov, AR(1)) process

$$Y(t) = \rho Y(t-1) + \varepsilon(t)$$

$t = 0, \pm 1, \pm 2, \cdots$ with $\varepsilon(.)$ a process of independent variates having mean 0 and variance σ^2 and $|\rho| < 1$.

a) Find a simple expression for the autocovariance function of $Y(.)$.

b) Find the third-moment and third-cumulant functions of $Y(.)$.