MSDM 5003 Homework 3 Hints

1. For the purpose of this homework, it suffices to use first order numerical schemes, such as left Riemann sum, for the integrations.

   (a) The autocorrelation for the given signal can be computed analytically. You are encouraged to find the closed-form expression and compare it with your numerical result. Bonus points will be awarded for correct analytic solution.

   (b) You are reminded that since the response function is a Gaussian, the integrand of the convolution integral can be considered to vanish when we move away from the mean of the Gaussian by several standard deviations. As a result, there is no need to integrate from $-\infty$ to $+\infty$. Instead, you can adjust the interval (the upper and lower limits) of the integral according to the value of σ without practically affecting the value of the integral.