Replicating Strategy. Question 1d

No. It doesn't converge like the first. This is the due to the absence of the annual return. Without the return, there wouldn't be cumulation.

Given values

S0 = 72.99; % Closing price

mu = 11.75/100; % Annualized return

sigma = 24.98/100; % Annualized Volatility

rho = 1/100; % Annualized interest rate

K = 80; % Strike price

T = 42; % Period - 2 months (21 days per month)

# Creating the new plot

N = 50;

delta\_array = zeros([1, N]);

for n=1:N

delta\_array(n) = Q1c(mu, sigma, rho, S0, K, T, n);

end

delta\_array

Compute the call option

d1 = (log(S0/K) + rho\*T)/(sigma\*sqrt(T)) + 1/2\*sigma\*sqrt(T);

c = S0 \* normpdf(d1) - K \* exp(-rho\*T) \* normpdf(d1 - sigma\*sqrt(T) )

c\_upper = 0.98 \* c;

c\_lower = 1.02 \* c;

The plot

figure(1)

plot(1:N, delta\_array, '-g', [1, N], [c, c], '-r', [1, N], [c\_lower, c\_lower], '--r', [1, N], [c\_upper, c\_upper], '--r')

title('Convergence Plot')

xlabel('Period')

ylabel('Hedging Stock')