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# ECEN 310 Assignment 4

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%Q1)
% plotting SNR gain
clear all;
close all;
clf;
clc

L = 1:8;

set(0,'defaulttextInterpreter','latex')

gainEGC = (1 + (L-1)*(pi/4))' *100

gainSC = ones(length(L),1);
for el = L
    val = 1:el;
    gainSC(el) = sum(1./val)' * 100;
end
gainSC

gainMRC = L' *100

figure(1)
hold on
plot(L,gainEGC,'LineWidth',2,'LineStyle','--');
plot(L,gainSC,'LineWidth',2,'LineStyle','--');
plot(L,gainMRC,'LineWidth',2,'LineStyle','--');
title('Mean SNR gain for each combining scheme')
xlabel('Antenna Count L')
ylabel('Percentage of gain compared to  $\bar{\gamma}$  [%]')

legend('Equal Gain Combining','Selection Combining','Mixed Ratio
Combining')

gainEGC =

    100.0000
    178.5398
    257.0796
    335.6194
    414.1593
    492.6991
    571.2389
```

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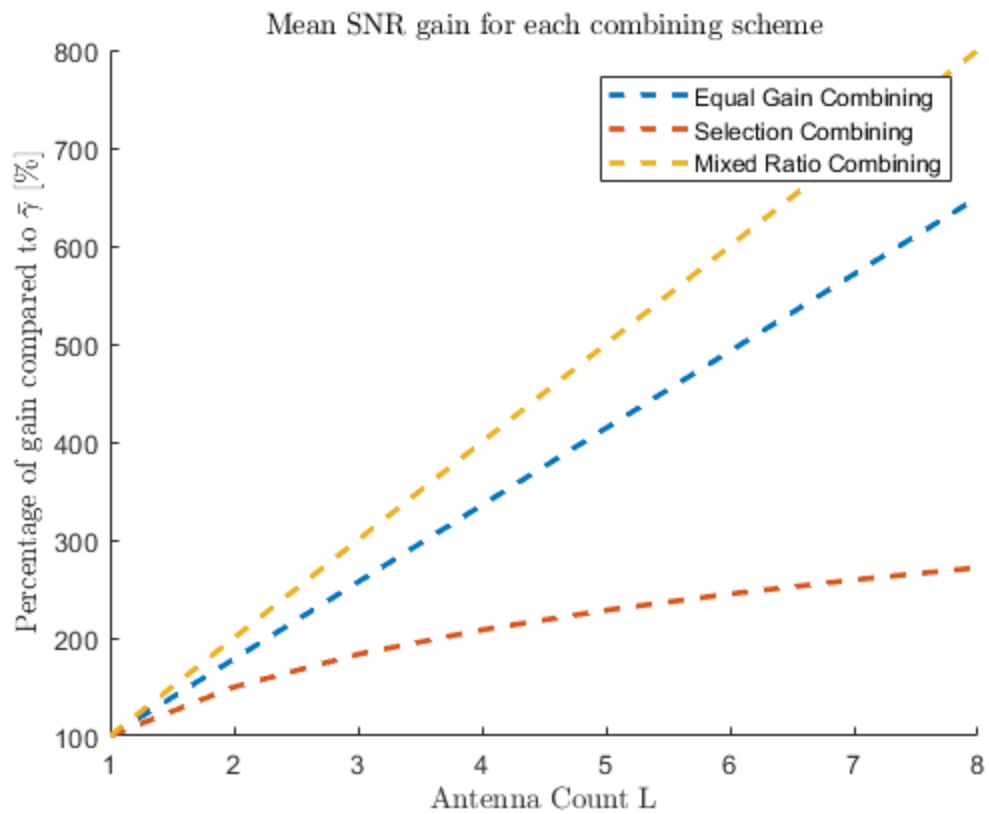
649.7787

*gainSC* =

100.0000  
150.0000  
183.3333  
208.3333  
228.3333  
245.0000  
259.2857  
271.7857

*gainMRC* =

100  
200  
300  
400  
500  
600  
700  
800



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