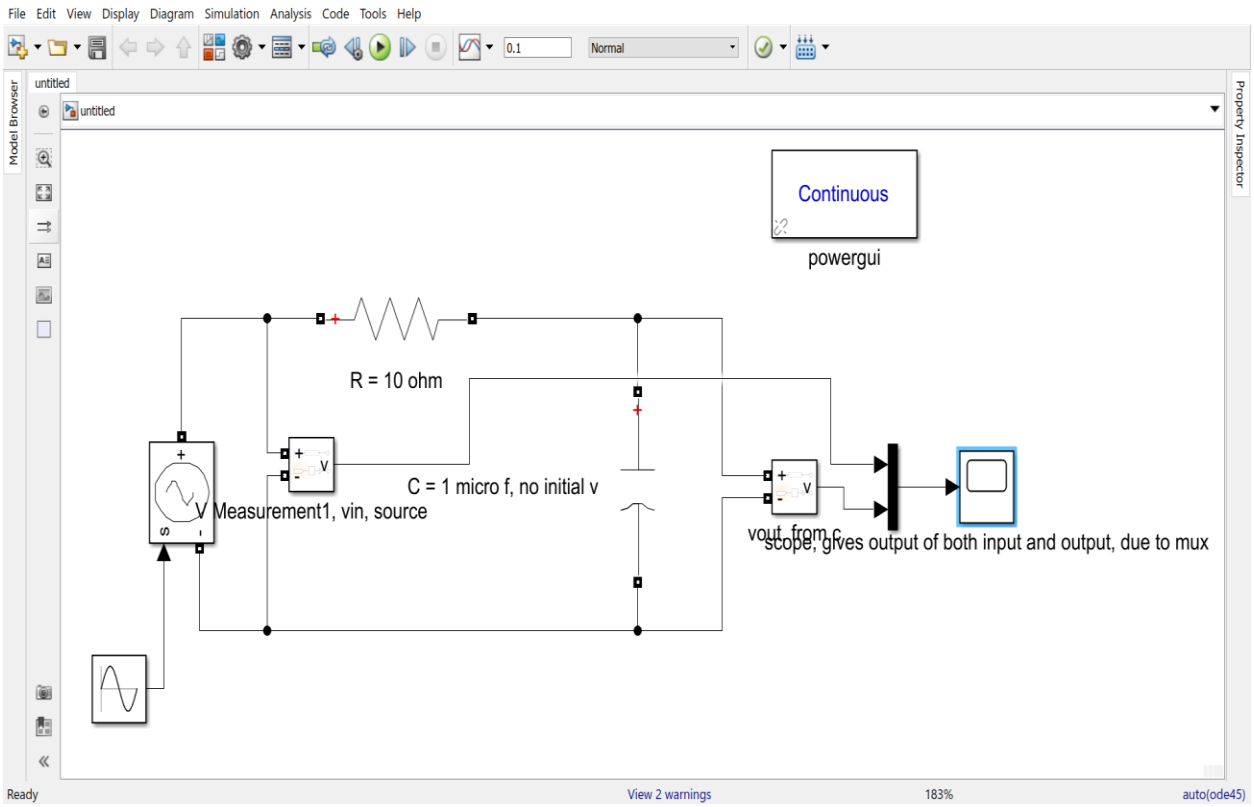
SNS

WEEK # 04:

"Frequency response of given RC circuit."

- **Values:** R = 10 Ω, C = 1 μf

1. ACROSS CAPACITOR CIRCUIT:



OBSERVATION TABLE:

Frequency is increasing by 250 Hz (low pass):

S.No	Frequency Hz	Gain	Phase shift Degrees
1	500	1.000	1.814
2	750	0.999	2.752
3	1000	0.998	3.638
4	1250	0.997	4.575
5	1500	0.996	5.445

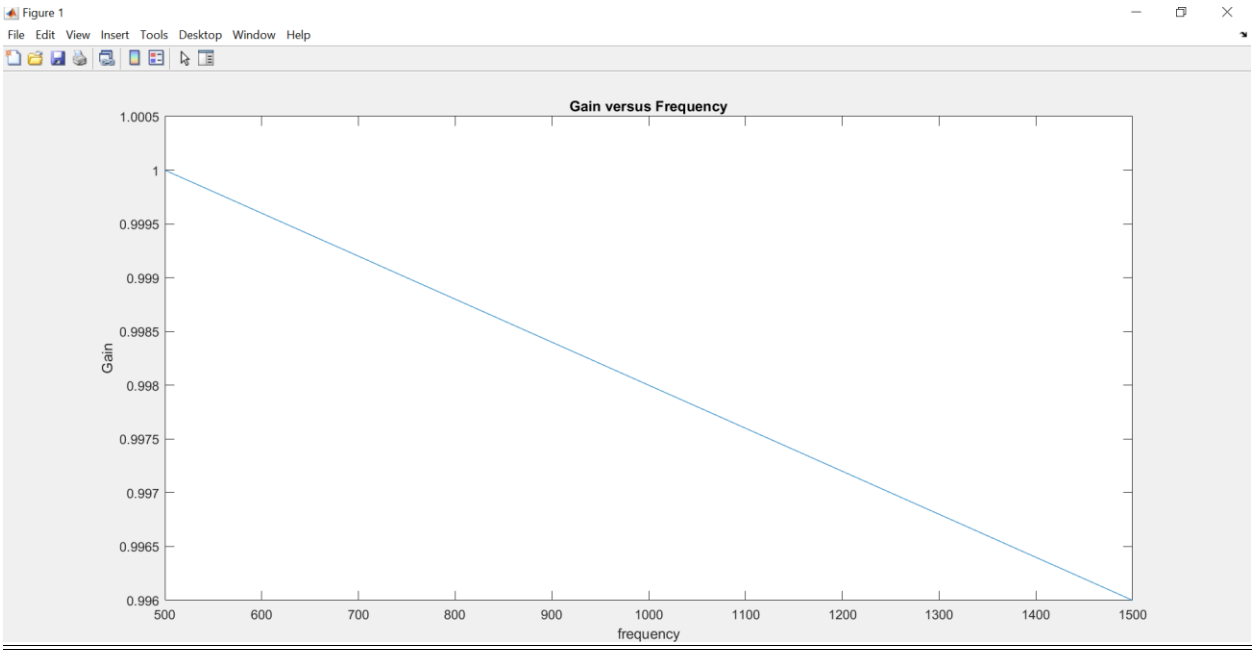
Frequency is increasing by the factor of 10:

S.No	Frequency Hz	Gain	Phase Shift Degrees
1	50	1.000	0.211
2	500	1.000	1.814
3	5000	0.954	17.620
4	50000	0.302	73.872

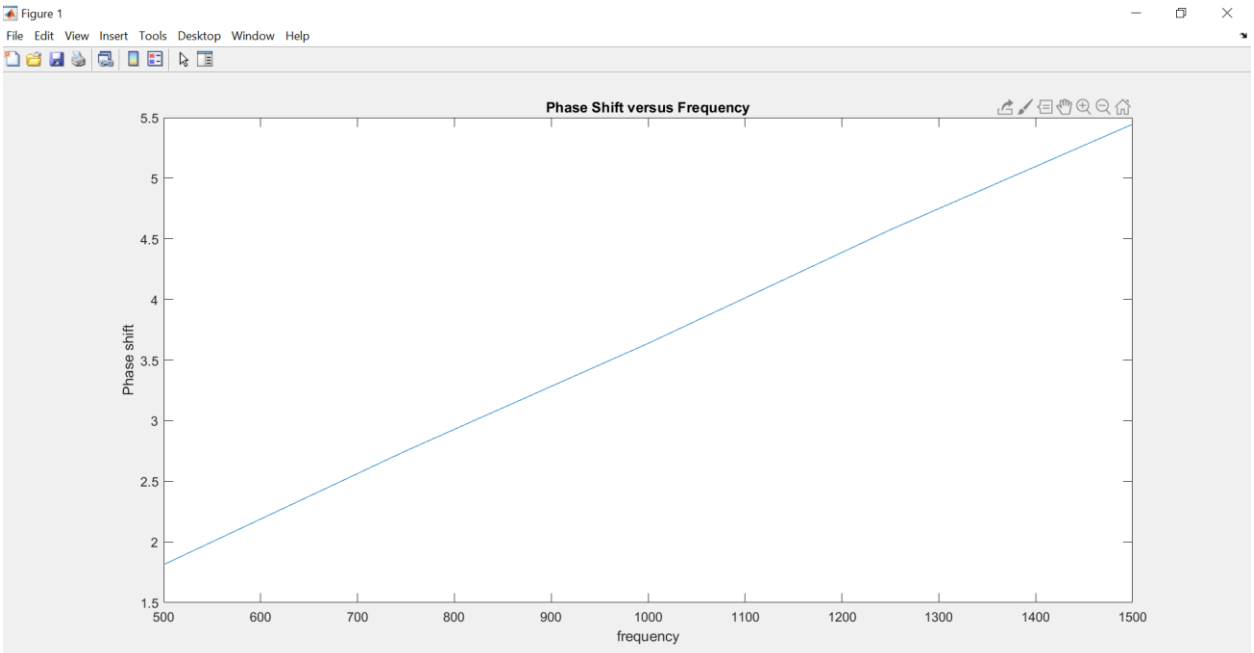
GRAPHS:

Frequency is increasing by 250 Hz:

Gain Plot:

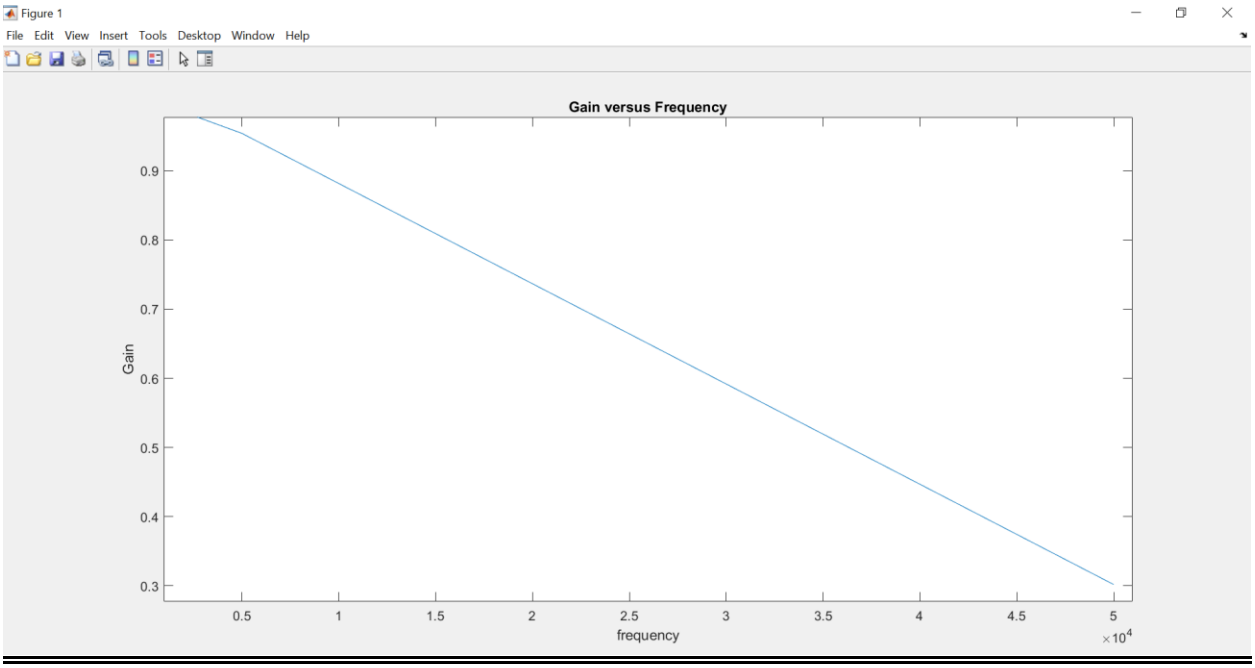


Phase Shift:

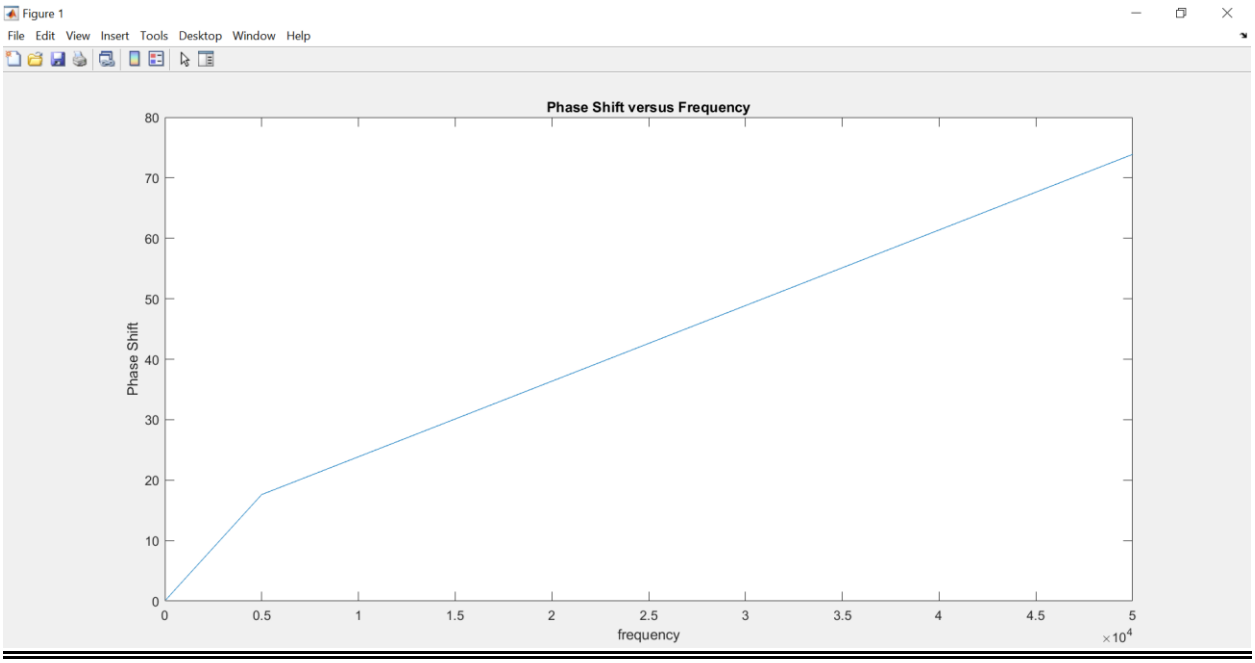


Frequency is increasing by the factor of 10:

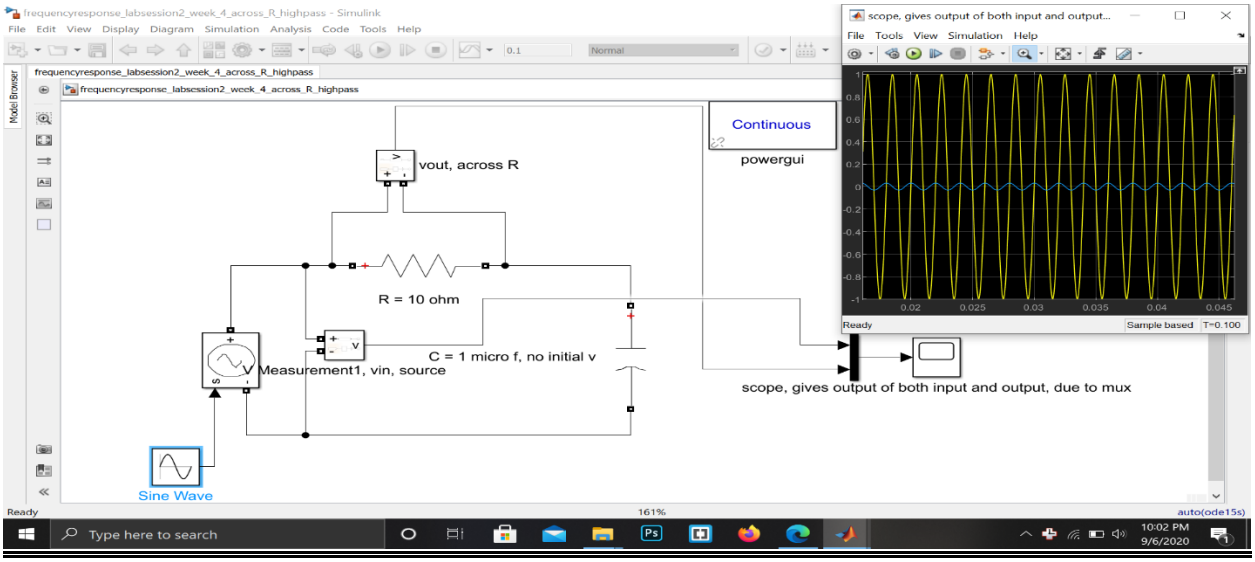
Gain:



Phase Shift:



2. ACROSS RESISTOR CIRCUIT:



OBSERVATION TABLE ACROSS R:

Frequency with a diff of 2000 Hz (High Pass):

S.No	Frequency Hz	Gain	Phase shift Degrees
1	1000	0.063	85.547
2	3000	0.183	80.329
3	5000	0.300	74.221
4	7000	0.403	67.135
5	9000	0.493	61.488

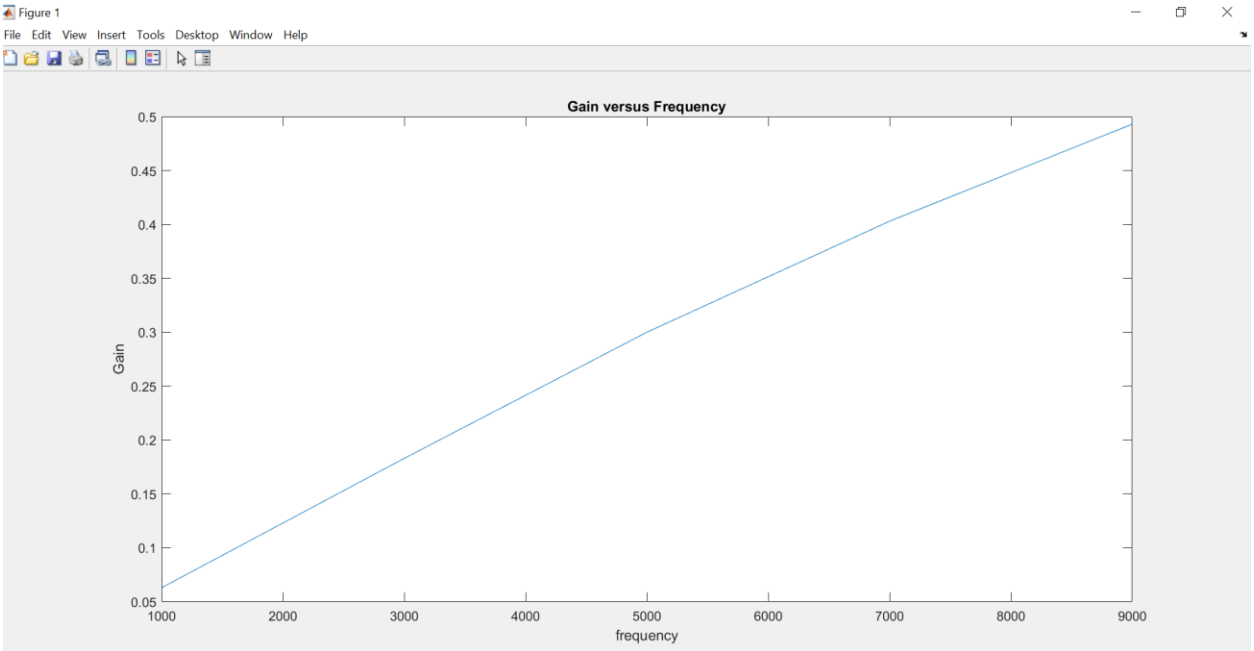
Frequency increasing by the factor of 10:

S.No	Frequency Hz	Gain	Phase Shift degrees
1	50	0.0027	89.802
2	500	0.032	88.61
3	5000	0.3	71.973
4	50000	0.953	17.871

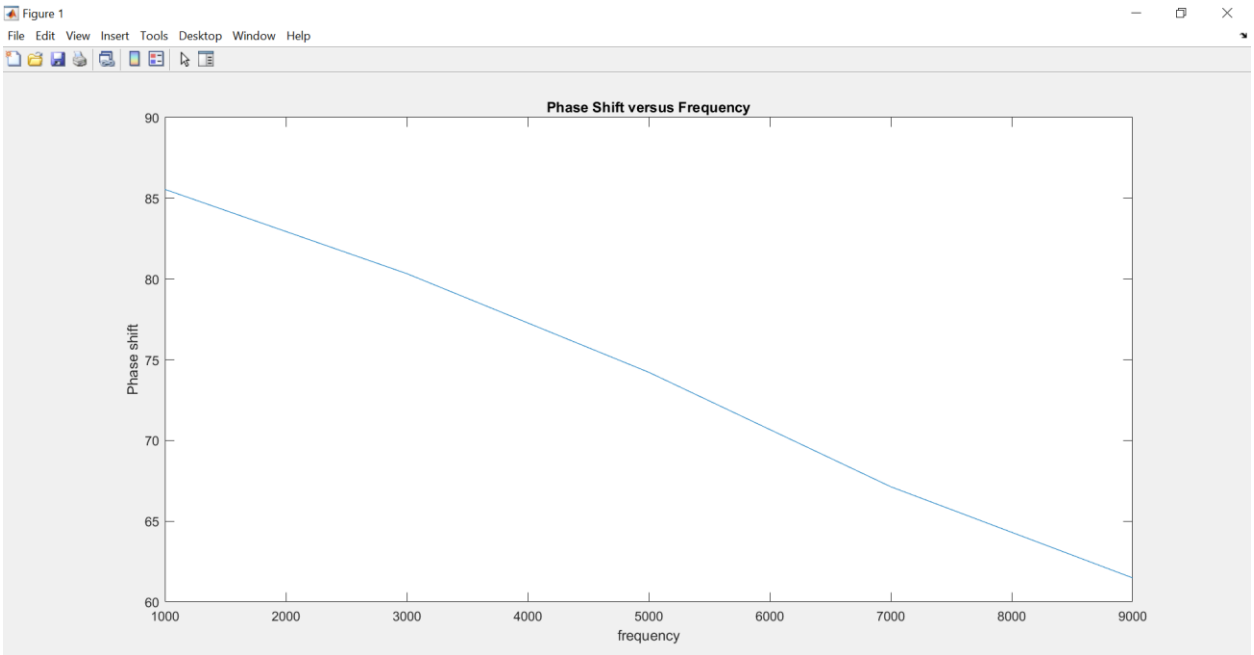
GRAPHS:

Frequency is increasing by 2000 Hz:

Gain Plot:

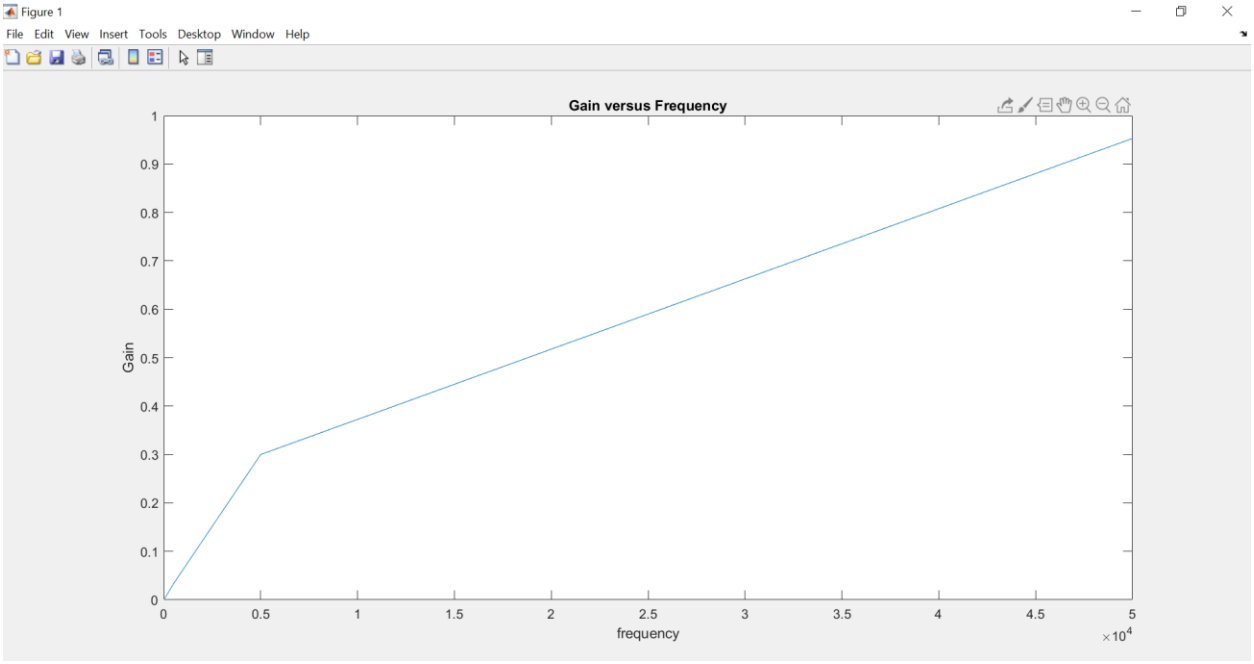


Phase Shift:



Frequency is increasing by factor of 10:

Gain Plot:



Phase Shift: