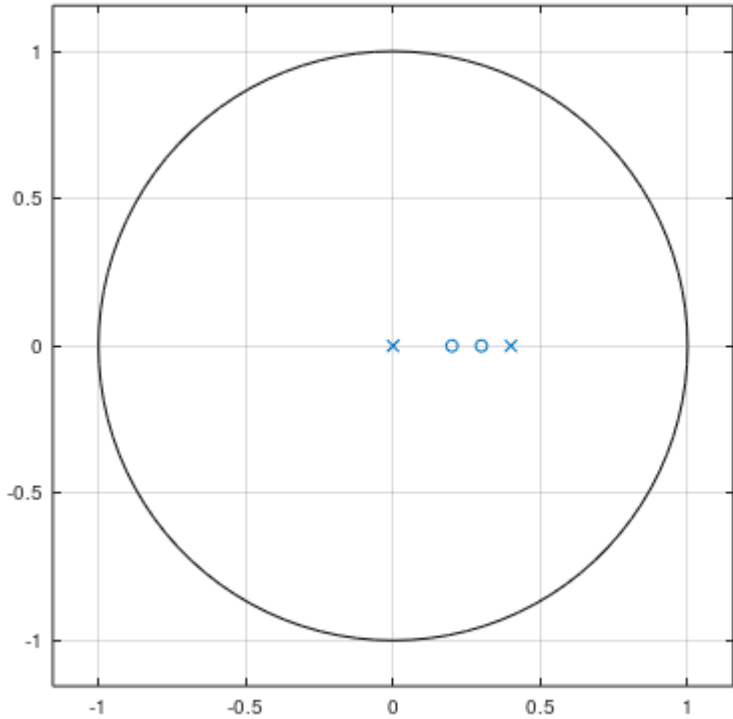
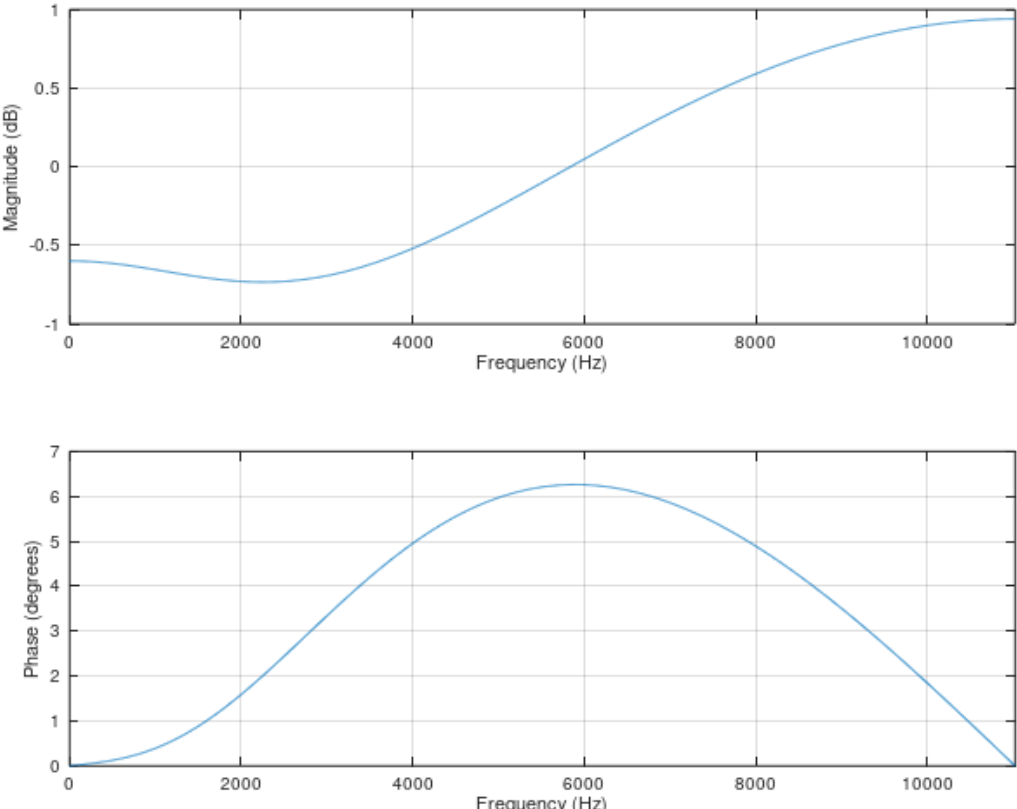


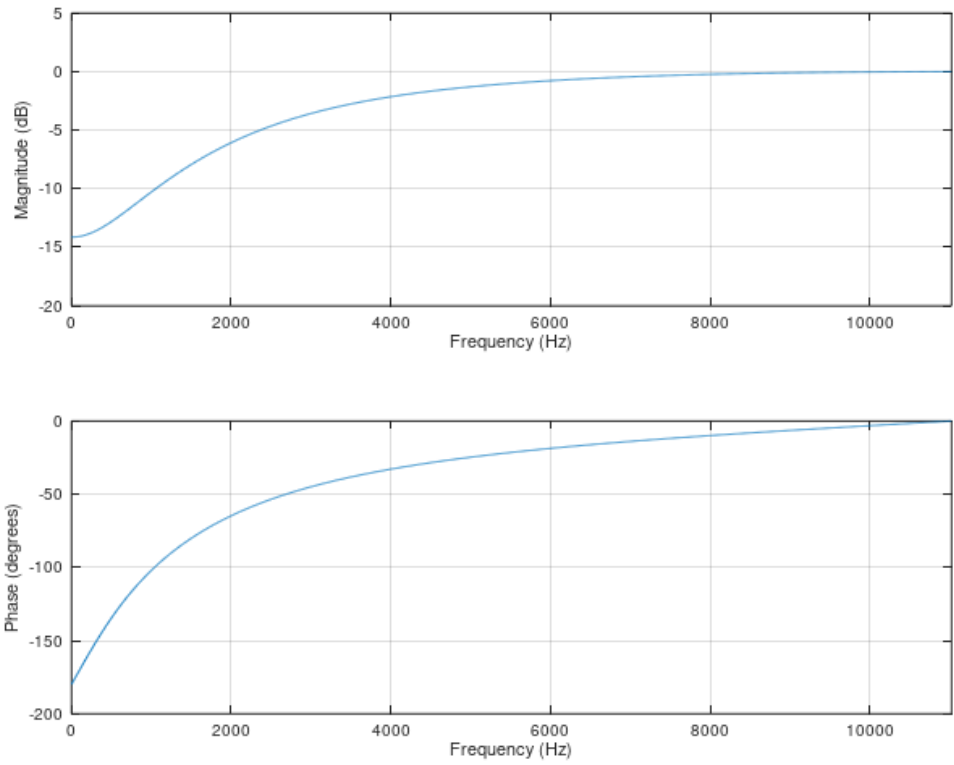
# TX00CQ31 – Digital Signal Processing

<b>Study 4: Poles and Zeros</b>	<b>Name(s): Arsi Arola</b>	<b>ID(s): 1706768</b>	<b>Deadline: Exercise 5</b>
---	------------------------------------	---------------------------	---------------------------------

Read these instructions first!

Number	Write your answer in this column	Question
Q1	<p>Write commands here !</p> <pre>Y = [1, -0.4]; X = [1, -0.5, 0.06];</pre>	<p>System</p> <p><math>y[n]</math></p> <p><math>0,06x[n]</math></p> <p>Describ</p> <p>can use</p>
Q2	<p>zplane(X, Y);</p> <p>Insert your picture here!</p>  <p>Is the system stable ?</p>	<p>Draw A</p> <p>determ</p>
Q3	<p>Write commands here !</p> <pre>roots(X) roots(Y)</pre>	<p>Calcula</p>

Q4	<p>Insert your picture here!</p> <pre> freqz(X,Y) Fs = 22050 freqz(X, Y, 1024, Fs) </pre> 	Genera rate of
Q5	IIR/FIR, why ?	Determ testing
Q6	<p>Zeros are...</p> <p><math>\pi/4</math> <math>7/4\pi</math></p> <p>Poles are...</p> <p><math>3\pi/4</math> <math>5/4\pi</math></p> <p>and that can be verified from this picture...</p>	<p>A second zero-po</p> <p>7 <math>\pi</math> ...</p> <p>Determ</p>

Q7	<p>Write commands here!</p> <pre> zz = [pi/4, 7/(4*pi)] pp = [3*pi/4, 5/(4*pi)] X = poly(zz) Y = poly(pp) </pre>	Determ param
Q8	<p>Insert your picture here!</p> <pre> Fs = 22050 gg = max(abs(freqz(X, Y, 1024, Fs))) bbns = X / gg freqz(bbns, Y, 1024, Fs) </pre>  <p>The figure consists of two vertically stacked plots. The top plot shows the magnitude response in dB on the y-axis (ranging from -20 to 5) against frequency in Hz on the x-axis (ranging from 0 to 10,000). The curve starts at approximately -15 dB at 0 Hz and rises smoothly to approach 0 dB at 10,000 Hz. The bottom plot shows the phase response in degrees on the y-axis (ranging from -200 to 0) against frequency in Hz on the x-axis (ranging from 0 to 10,000). The curve starts at approximately -180 degrees at 0 Hz and rises smoothly to approach 0 degrees at 10,000 Hz.</p>	Determ system  Genera
Q9	<p>Write your answer here!</p>	Just for with the change rate (80