**Guided Solution for Tutorial 6**

**Q4-1.**

(a)



Step 1: Replace z by e-jw

Step 2: Take the magnitude and simplify using the trigonometry property for cos w

You should be able to get the following expression,

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Plot the above equation

(b)



Expanse the summation,



And obtain the values for X(0)=2, X(1)=-j, X(2)=0 and X(3)= j

Obtain the magnitude of the different components:

, , , 

c) The results in (b) are the sampled version of (a).

d)







e) yes, simply sample  as following:



It can be verified that the results from d & e are the same.

**Q4-2.**

a)



 and obtain the following:









b) 









c)

,  , , 

And values of X2 is the same as X1

e) 2.5