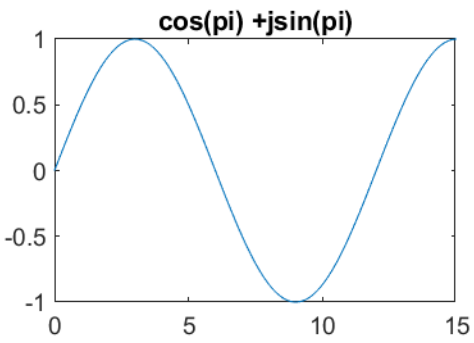
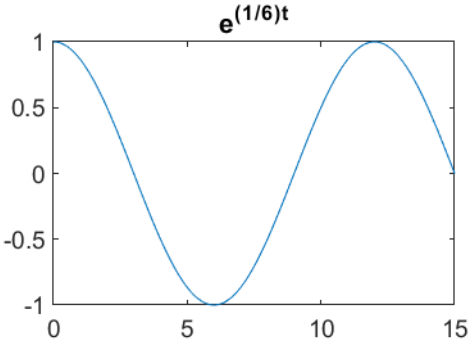
Part 1

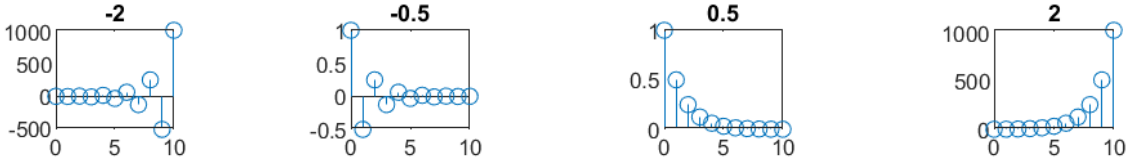


Imaginary



Real

Part 2

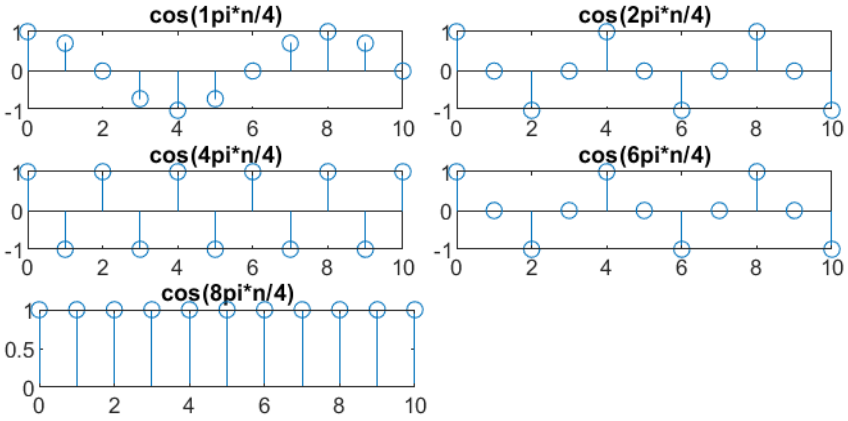


For plots with z = -2 and -0.5, the graph shows the x values floping between negative and postive. This is because z is negative and a negative raised to a power (in this case n) will alternate between postive and negative depending on the value. The plots are going in an inverse way from eachother because -1/2 is the inverse of -2.

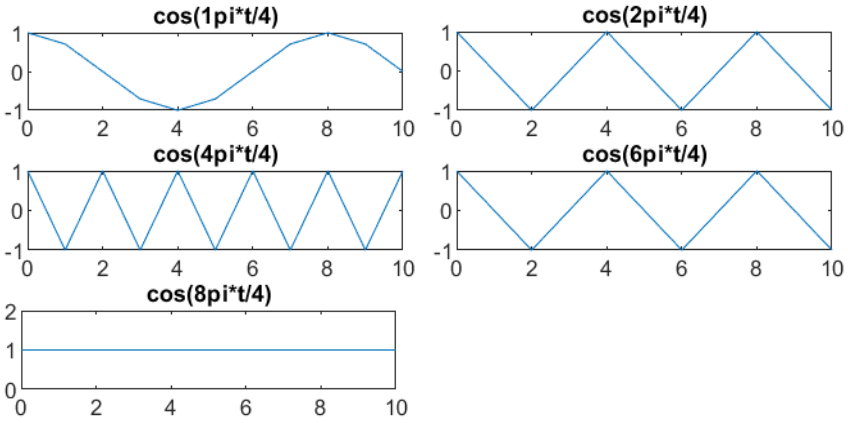
For plots with z = 2 and 0.5, the graph shows the x values as postive. This is because z is postive and a positive number raised to a power is always postive. The plots are going in an inverse way from eachother because 1/2 is the inverse of 2. The x values increase for 2 as n increases, but the x values for 0.5 decrease as n increases.

Part 3

DT:



CT:



In order for the period to increase when the frequency decreases, then the signal must be periodic. A discrete time signal faces more regulations in order to be classfied periodic then continuous time signals. For a discrete time signal to be periodic x(n) =(n+N) and **then the ratio** of (fund freq)/(2pi) must be a rational number (M/N) where M is number of full cycles and N is the number of samples. The ratio is irrational for the dt signals which is why they're not periodic.