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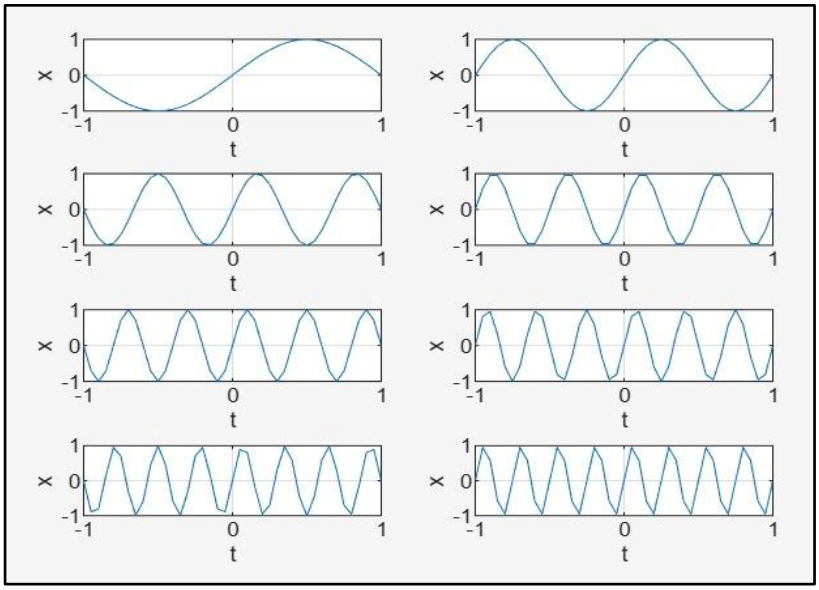
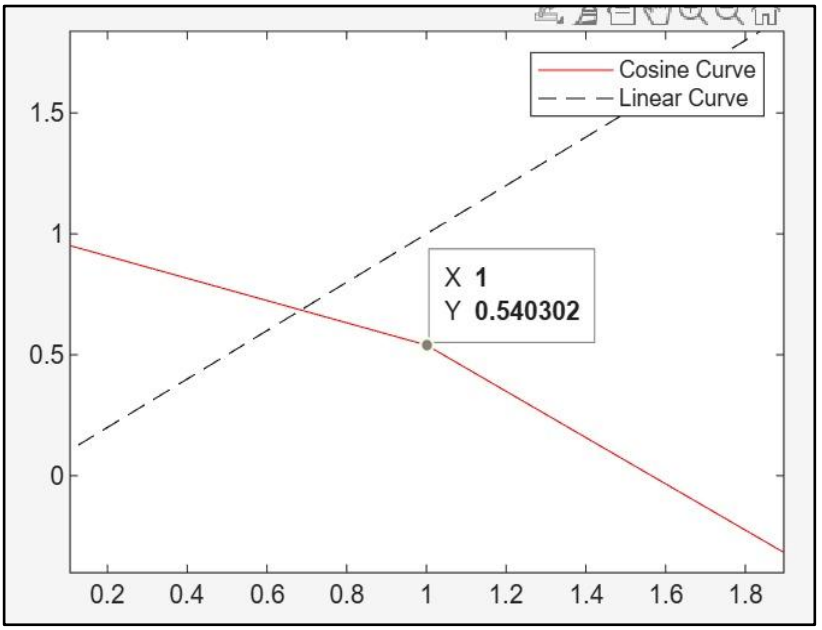
Lab Session No. 01

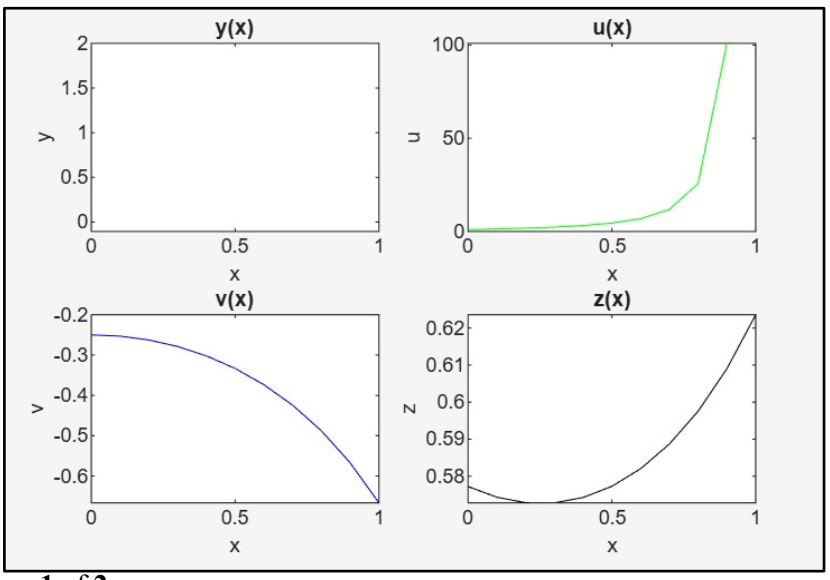
1. Write MATLAB code to plot function x = sin(nπt). Generate 8 subplots using for loop. Use step size of 0.05.



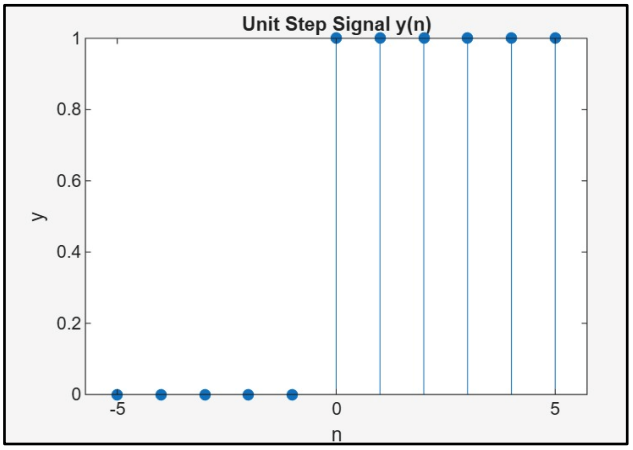
2. Write a sequence of MATLAB commands in the space below to plot the curves y1 = cosx and y2 = x for $0 \leq x \leq 2$ on the same figure. Then zoom in to determine the point of intersection of the two curves (and, hence, the root of x = cosx) to two significant figures. Your plot must be properly labeled.

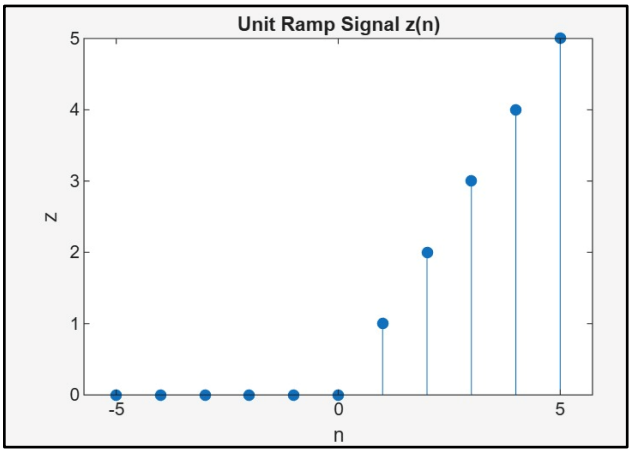


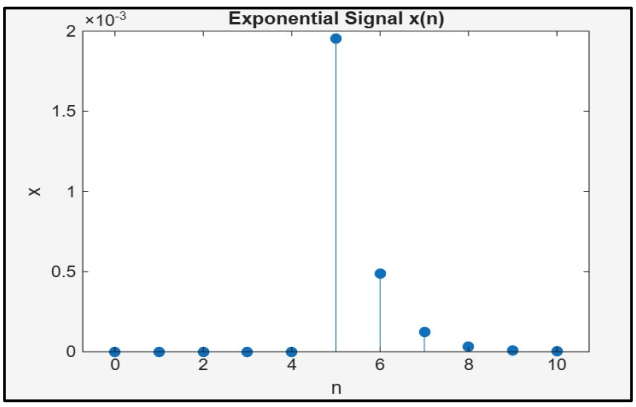
3. Draw graphs of the functions for x = 0:0.1:10 and label your graph properly.
i. y = sin(x)/x
ii. u = $(1/(x-1)^2) + x$
iii. v = $(x^2+1) / (x^2 -4)$
iv. z = $((10-x)^{1/3} -1) / (4 – x^2)^{1/2}$



4. Write MATLAB commands to plot following elementary DT signals. Properly label your graphs.
a) Unit Step
b) Unit Ramp
c) Real Exponential: $x(n) = 2(0.25)^n$, $0 < n < 10$







5. Generate multiple plots with the following data: Suppose A = 1, f = 1Hz, t = 0:0.01:1: y1(t) = cos(2πt); y2(t) = cos(2πt+π/2); y3(t) = cos(2πt-π/2); y4(t)=sin(2πt) where A is the amplitude of signal. Use colors & line styles to distinguish the plots.