To verify the sampling theorm in scilab

clc;

clear;

fm = input("enter input signal frequency");

k = input("enter number of cycles");

ti = 0:1/(fm\*fm):k/fm;

x1 = sin(2\*%pi\*fm\*ti);

subplot(2,2,1);

plot(ti,x1);

title("input signal");

xlabel("time");

ylabel("amplitude");

fs1 = 1.5\*fm;

n1 = 0:1/(fs1):k/fm;

x2 = sin(2\*%pi\*fm\*n1);

subplot(2,2,2);

plot(n1,x2);

plot2d3(n1,x2);

title("under sampling");

xlabel("time");

ylabel("amplitude");

fs2 = 3\*fm;

n2 = 0:1/(fs2):k/fm;

x3 = sin(2\*%pi\*fm\*n2);

subplot(2,2,3);

plot(n2,x3);

plot2d3(n2,x3);

title("Nyquist sampling");

xlabel("time");

ylabel("amplitude");

fs3 = 20\*fm;

n3 = 0:1/(fs3):k/fm;

x4 = sin(2\*%pi\*fm\*n3);

subplot(2,2,4);

plot(n3,x4);

plot2d3(n3,x4);

title("Over sampling");

xlabel("time");

ylabel("amplitude");

