1. Utilize the MATLAB® implementation of the Fourier Series approximation of an even square wave (that you developed in Module 2), to develop a function M-file called “sq\_wave\_fourier\_fn\_LastName.m”. The input arguments are to be “freq,” “time,” and “N”; where freq = square wave frequency in Hz, time = vector of time points, N = number of terms in the Fourier Series approximation. The output of the function is the approximation of the square wave. Then create a driver program called “sq\_wave\_driver\_LastName.m” that generates three different approximations (for N = 3, 9 and 29) of a 1 Hz square wave and plots them on three separate subplots. Obviously your driver program should call your function m-file to generate the approximations.

**Answer**

Graphical user interface, application

Description automatically generated

1. Similar to the helix example described in MATLAB®’s help information for PLOT3, create a 3D plot of the following parametric function:

Text, letter

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Your program should be named “helix\_driver.m” and should create five different views of the function: MATLAB® default 3D view, MATLAB® default 2D view, the X-Z plane, the Y-Z plane, and a customized view of your choice that you have decided provides the most accurate 3D view of the function. Remember the command ‘figure’, issued all by itself, creates a new figure window without destroying previously existing figures.

Graphical user interface, chart, application

Description automatically generated