**Problem:** Determine an array of y for x = 0 to ­π/2 in increments of π/40. Also, calculate an array of values for z = y ^2 for each value of x.





Plot both functions on the same graph with y as a solid line and z as symbols only. Add labels to each axis, a title, and a legend.

**Solution:** I used Matlab for the solution.

Here is my script:

%% Problem #1

% References fuction to compute values of y based on x, and values of z based on y.

% Graphs functions y and z versus x on the same graph.

% Differentiates with legend and different line styles for y and z.

% Reset Matlab variables, command window, and figures.

clear all; close all; clc

%Constants

a = 2;

b = 5;

%Array of X values created

x = 0:pi/40:pi/2;

%Solve for an array of y values based on x

y = b.\*exp(-a.\*x).\*sin(b.\*x).\*(0.012.\*x.^4-0.15.\*x.^3+0.075.\*x.^2+2.5.\*x);

%Solve for an array of z values based on y based on x

z = y.^2;

%Plot graph of z and y versus x

plot(x,y,x,z,'o'); grid on;set(gca,'GridLineStyle','-');xlabel('X'); ylabel('Y and Z'); title('Cunningham Problem #1');

legend('Y', 'X','Location', 'NorthEast');

