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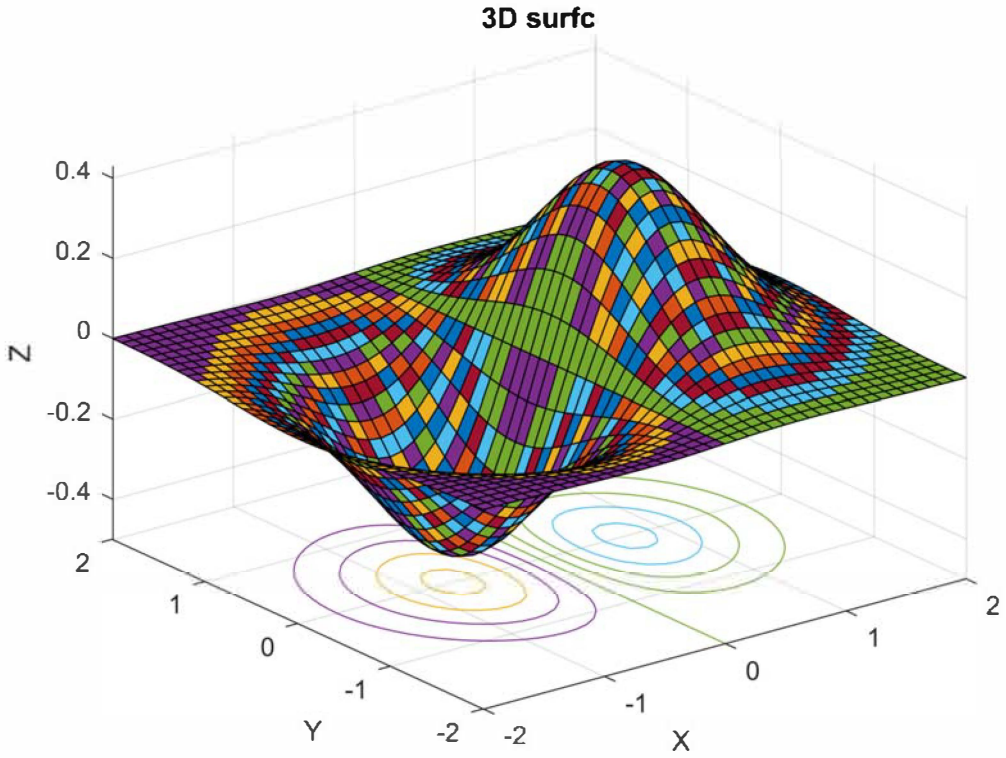
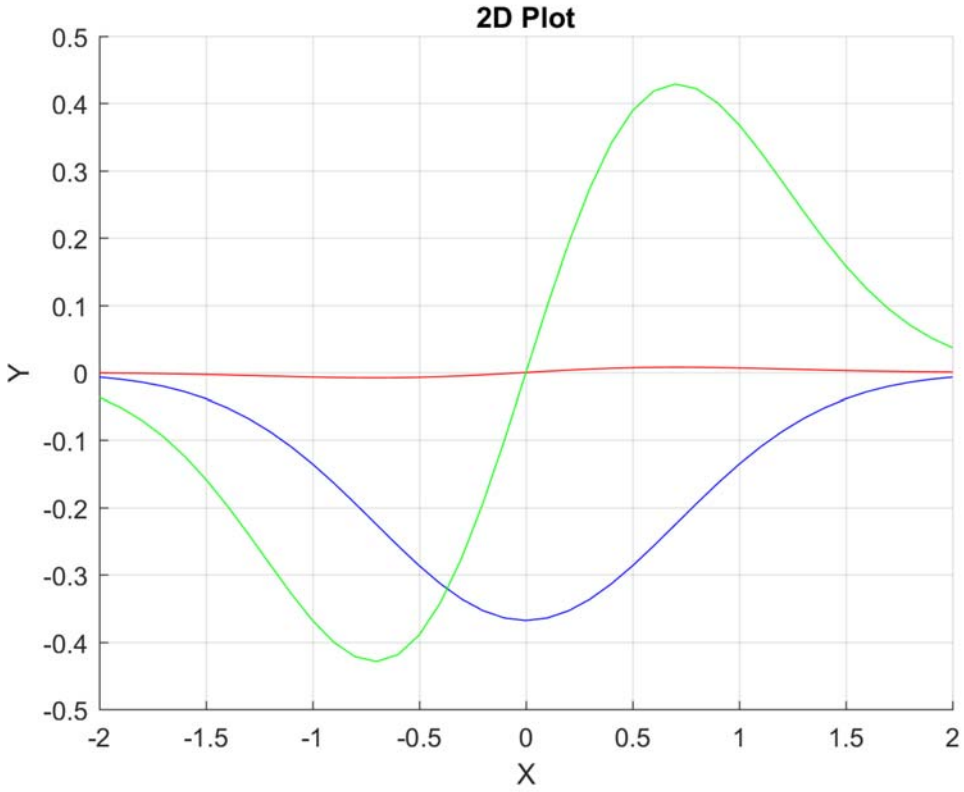
```
close all; clear all;
% PART A
x = [-2:0.1:2]; y = [-2:0.1:2]; [X,Y] = meshgrid(x,y);
Z = X.*exp(-X.^(2)-Y.^(2));
surfc(X, Y, Z); colormap('lines');
title('3D surfc'); xlabel('X'); ylabel('Y'); zlabel('Z');
```




```
% PART B
figure; hold on;
plot(x,Z(1,:),'-r'); %g(x,-2)
plot(y,Z(:,11),'-b'); %g(-1,y)
plot(x,Z(21,:),'-g'); %g(x,0)
grid on; hold off;
title('2D Plot'); xlabel('X'); ylabel('Y');
```




```
% PART C
minZ = min(Z(:)); maxZ = max(Z(:));
[min_x,min_y] = find(Z == minZ); [max_x,max_y] = find(Z == maxZ);
%min = [21, 14] = -0.4288
%max = [21, 28] = 0.4288
% PART D
  %The 2-D plots relate to the 3-D plot because the 2-D plots are planar slices of the 3-D plot.
  %an example is shown by how the max and min values are identical in both plot types.
% PART E
  %The 3-D plot makes sense because the polarity of Z depends on the value of x since exp() will
  %always yield positive values. The 2-D plots make sense because they are produced by slicing
  %the 3-D plot using a plane at specific locations. That plane locaiton is determined by the
  %constant value, the spanning variable and the image of the constant value under the function.
% PART F
  %Meshgrid outputs two matrices for the first (m) and second dimensions (n) where both are m*n
  %matrices with repeating rows and columns, respectively.
```