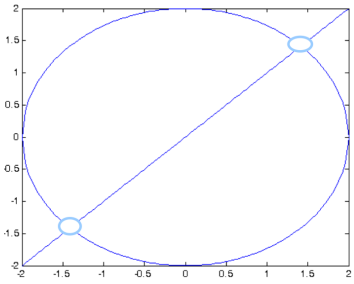
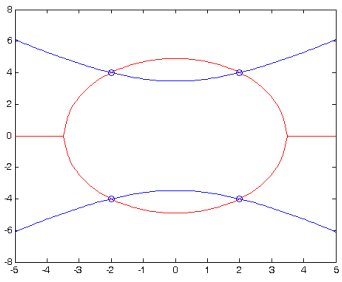
A. Solve nonlinear equations and draw the following figure

$$x_1^2 + x_2^2 - 4 = 0$$
$$x_1 - x_2 = 0$$



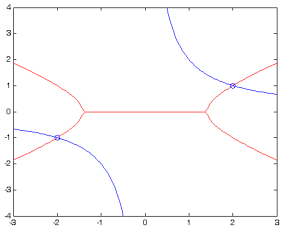
B. Solve nonlinear equations and draw the following figure

$$f_1(x_1, x_2) = 2x_1^2 + x_2^2 - 24 = 0$$
$$f_2(x_1, x_2) = x_1^2 - x_2^2 + 12 = 0$$



C. Solve nonlinear equations and draw the following figure

$$f_1(x_1, x_2) = x_1^2 - 2x_2^2 - 2 = 0$$
$$f_2(x_1, x_2) = x_1 x_2 - 2 = 0$$



D. Solve nonlinear equations

$$f_1(x) = exp(x_1) + x_2 * x_3 - 3 = 0$$
$$f_2(x) = \frac{x_1}{x_2} + x_3^2 - log(x_2) = 0$$
$$f_3(x) = \frac{x_1}{x_1 + x_2 + x_3} - sin(x_3) = 0$$

E. Let A denote a Nxd matrix and B denote a dxM matrix.

1. Draw a nested for-loop to determine C=A*B.
2. Write matlab codes to implement your flow chart
3. Let N=2000, d=200 and M=2000. Write down the CPU execution time.
4. Write down the CPU time of direct execution of C=A*B

F. Let X denote a Nxd matrix. Let D denote a NxN matrix, where D(i,j) measures the distance between the ith row and the jth row of X.

1. Draw a nested for-loop to determine D.
2. Write matlab codes to implement your flow chart.
3. Let N=3000 and d=200. Write down the CPU time of determine D by a nested for-loop.
4. Write vector codes to determine D. Write down the CPU execution time.