Math02B Assignment 6.6	Last Name	1st
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Give complete solutions to the following problems. Be sure to provide all the necessary steps to support your answers.

10. Consider the set of points.

Х	-2	1	2	3	3
Y	-3	2	3	4	6

a. produce a corresponding linear system of equations.

b. show that the linear system in part a is inconsistent.

c. use a projection matrix to find the corresponding Normal system.

d. solve the Normal System for the least squares solution.

e. use the solution in d to find the least squares regression line for the set of points in the problem.

2. A simple curve that makes a good model for the variable cost of a company, as a function of sales level x, has the form $y = \beta_1 x + \beta_2 x^2 + \beta_3 x^3$. (without a fixed cost)

Data: 14, 3.4), (6, 2.08), 8, 2.5), (10, 2.8), (12, 3.1), (14, 3.4), (16, 3.8), and (18, 4.32) with the values in thousands.

a. use the data to produce a system of equations the satisfies the model above.

b. give the design matrix and the parameter vector for the linear model that leads to the least squares fit of the equation above with data.

c. Find the least squares curve of the form above for the data

d. Use the plot function in your calculator to produce a graph of the data together with the approximating model.