Practice Question 2

1. Apply Regression Method to fit a model in the data shown below.

S.No	X	y	S.No.	X	Y
1	5	22.2	14	31	20.3
2	7	21.6	15	33	19.8
3	9	22.6	16	35	20
4	11	21.7	17	37	20.23
5	13	22	18	39	20.19
6	15	21.6	19	41	19.8
7	17	21.8	20	43	19.75
8	19	21.2	21	45	20.01
9	21	20.7	22	47	19.32
10	23	21.1	23	49	20.09
11	25	20.7	24	51	19.79
12	27	20.6	25	53	19.3

a. Fit a linear Model in the data set shown in above table. Find the parameters of the model.

b. Fit a quadratic Model in the data set shown in above table. Find the parameters of the model.

c. Find the optimal order of the model in order to avoid overfitting.

d. Derive the expression for estimation of the parameter when the model is represented as vector function.