Problems are from the textbook:

Figliola, R. S., and D. E. Beasley, **Theory and Design for Mechanical Measurements**, John Wiley & Sons Inc., 6th edition 2015.
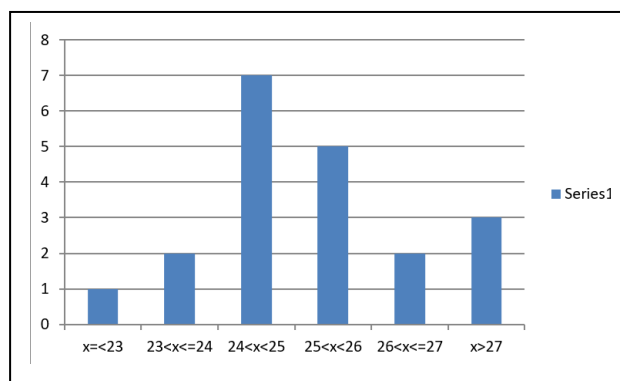
4.3 P(x>=13)=0.3085 bar

4.9 in your textbook with the following temperature input data

i	1	2	3	4	5	6	7	8	9	10
T	26.0	26.5	24.7	25.5	24.9	24.8	28.2	23.7	24.5	25.8

11	12	13	14	15	16	17	18	19	20
27.1	23.9	24.4	25.1	26.5	24.1	25.7	22.1	27.1	25

Also use excel to plot the histogram of the above data using the bins: 23,24,25,26 and 27
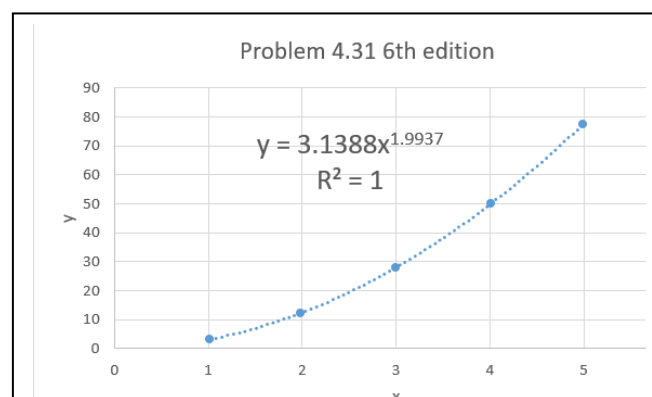

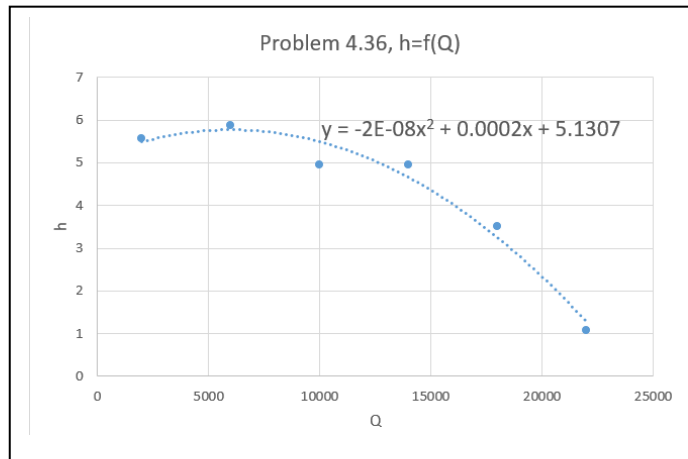**4.28** in your textbook while changing the data to

i	1	2	3	4	5	6	7	8	9	10
x	924	931	910	927	930	915	925	933	926	923

Third measurement i.e. x=910 can be rejected, N=9, $\bar{x} = 926, s_x = 5.315$

4.31 in your textbook

Problem 4.31 6th edition

$y = 3.1388x^{1.9937}$

$R^2 = 1$

4.36 in your textbook

Problem 4.36, h=f(Q)

$y = -2E\text{-}08x^2 + 0.0002x + 5.1307$

4.42 in your textbook with the confidence interval changed from ± 0.28 V to ± 0.3 V

$t_{(50,95)} = 2.008$, $N_{tot} = 104$, $N_{add} = 104-51 = 53$

Additional problem

A. The following x, y data is to be presented in a graph

x	0.6	1.2	2.1	2.8	5.2	9.8			
y	1.5	4.6	10	52.8	200	1227			

Solve manually for curve fit of first order polynomial and use Excel (Trendline) for both first and second order cases.

Additional Problem

$y = 133.5x - 233.52$
$R^2 = 0.8892$

$y = 18.584x^2 - 62.647x + 51.142$
$R^2 = 0.9981$