

King Fahd University of Petroleum and Minerals
College of Computer Sciences and Engineering

CISE 301 – Numerical Methods (T152)

Homework # 04 (due date & time: Tuesday 08/03/2016 during class period)

*** Show all your work. No credit will be given if work is not shown! ***

Problem 1 (20 points): Fit the following data with the power model ($y = ax^b$). Use the resulting power equation to predict y at $x = 9$:

x	2.5	3.5	5	6	7.5	10	12.5	15	17.5	20
y	13	10	8.5	8.2	7.3	6.2	5.2	4.8	4.6	4.3

Problem 2 (20 points): Fit an exponential model to

x	0.4	0.8	1.2	1.6	2	2.3
y	800	950	1500	1975	2900	3650

Problem 3 (60 points): Given the data

x	5	10	15	20	25	30	35	40	45	50
y	17	24	30	33	38	38	40	40	42	41

use least-squares regression to fit:

- (a) a straight line
- (b) a power equation
- (c) a parabola

Problem 4 (20 points): Use multiple linear regression to fit

x_1	0	1	1	2	2	3	3	4	5
x_2	0	1	2	1	2	1	2	1	2
y	15.1	17.6	12.7	24.6	20.5	33.1	29.7	45.4	40.2