Python 3.6.5 |Anaconda, Inc.| (default, Mar 29 2018, 13:32:41) [MSC v.1900 64 bit (AMD64)]
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IPython 6.4.0 -- An enhanced Interactive Python.

In [1]: runfile('C:/Users/hoops/OneDrive/Documents/School/ME EN 2450 Numerical Methods/
HW6/HW6a.py', wdir='C:/Users/hoops/OneDrive/Documents/School/ME EN 2450 Numerical Methods/
HW6')
Exercise 0:
Analytical Solution: P = 137077.83890401886 N
Using the power method with 5 nodes and 1 iterations: p^2 = 1.0427706256679103 and thus P
= 130346.32820848879 N
Using the power method with 5 nodes and 2 iterations: p^2 = 1.0418474763101524 and thus P
= 130230.93453876906 N
Using the power method with 5 nodes and 3 iterations: p^2 = 1.0414011866938964 and thus P
= 130175.14833673704 N
Using the power method with 5 nodes and 4 iterations: p^2 = 1.041398149896716 and thus P =
130174.7687370895 N
Using the power method with 5 nodes and 5 iterations: p^2 = 1.0413981712558384 and thus P
= 130174.77140697981 N

Determine level of discretization:
Using the power method with 11 nodes and 10 iterations: p^2 = 1.08763297121887 and thus P
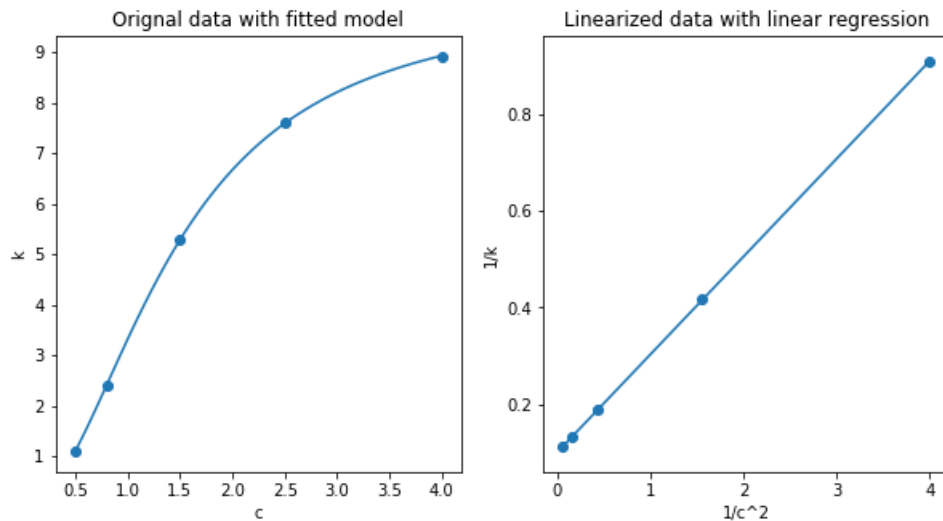= 135954.12140235875 N and error percentage from analytical solution is 0.82%
Through testing it was found that discretization with 11 nodes gives a 0.819765988904254%
error with 10 iterations

Exercise 1:
Regression slope: 0.20248898968029247   Regression intercept: 0.09939628142914936
kmax = 10.060738546972804   cs = 2.0371887838140967
Predicted growth rate at c = 2 mg/L = 6.665843263968141

In [2]: