Exponential Modeling/Regression

Find an exponential model for the data. Use the model to predict when the tuition at U.T. Austin will be $6000.

Step 1 Enter data into two lists in a graphing calculator. Use the exponential regression feature.

Tuition of the University of Texas	
Year	**Tuition**
1999–00	$3128
2000–01	$3585
2001–02	$3776
2002–03	$3950
2003–04	$4188

For this problem you would have:

L1	L2
0	3128
1	3585
2	3776
3	3950
4	4188

Step 2 Go back to the home screen and then select STAT, CALC, 0:ExpReg

You should see:

Xlist: L_1

Ylist: L_2

FreqList:

Store RegEq:

Calculate

Go to Store RegEq and select: VARS, Y-VARS, 1:Functions…, Y_1

You should see:

Xlist: L_1

Ylist: L_2

FreqList:

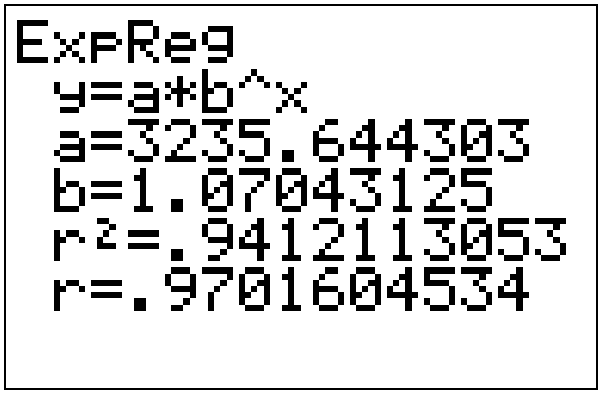
Store RegEq: Y_1

Calculate

Step 3 Select calculate

The exponential equation will be:

$$y = 3235.64(1.07)^x$$



$$y = 3235.64(1.07)^x$$

$$6000 = 3235.64(1.07)^x$$ Find when tuition = $6000

$$1.854 = (1.07)^x$$ Divide by 3235.64

$$\log_{1.07}(1.854) = x$$ Convert to a log

$$x = 9.12$$

The tuition will be greater than $6000 for the first time when t = 10 (round up 9.12 to the next academic year) or the 2009–2010 school year.