

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Regression

#### A little vocab...

- The \_\_\_\_\_ is the line that lies as close as possible to all the data points.
- \_\_\_\_\_ is a method used to find the equation of the best fitting line or curve.
- \_\_\_\_\_ is the use of the regression curve to make predictions outside the domain of values of the independent variable.
- \_\_\_\_\_ is used to make predictions within the domain of values of the independent variable.

#### Regression using the calculator:

1. DATA DATA 4 (this will clear all data already in the tables)
2. DATA (type in data)
3. 2<sup>nd</sup> DATA
4. LinReg  $ax + b$  (for linear regression)  
ExpReg  $ab^x$  (for exponential regression)  
QuadReg  $ax^2 + bx + c$  (for quadratic regression)  
L1 L2 ONE YES CALC
5.  $a =$   
 $b =$   
 $c =$   
 $r =$
6. Correlation Coefficient is  $r$  (use  $r^2$  for quadratic)

Ex 1: The table shows the total outstanding consumer debt (excluding home mortgages) in billions of dollars in selected years. (Data is from the Federal Reserve Bulletin.)

Let  $x = 0$  correspond to 1985.

Year, $t$	1985	1990	1995	2000	2003
Consumer Debt	585	789	1096	1693	1987

- a) Find the line of best fit. Round to two decimal places.
- b) Find and interpret the slope of the line of best fit.
- c) Find the approximate consumer debt in 1998.
- d) Find the approximate consumer debt in 2008.