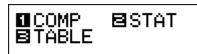


## Module 6: Examples of functions from geometry

## Part A - Finding linear best fit line equations

There are many nonlinear models that exist to find a best fit model for data. Start by pressing MODE and selecting 2.



Here are all the types of regression models that are built in.

2: A + BX- Linear Regression

3:  $_+$  CX $^2$  (A + BX +CX $^2$ ) Quadratic Regression

4: In X (A + B\*In X)- Natural Log Regression

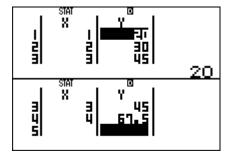
5: e^X (A\*e<sup>BX</sup>)- Exponential base e Regression

6: A\*B^X (A\*B<sup>X</sup>)- Exponential Regression

7:  $A*X^B (A*X^B)$ - Power Regression 8: 1/X (A + B/X)- Inverse Regression 1:1-VAR 2:A+BX 3:\_+CX2 4:1n X 5:@^X 6:A·B^X 7:A·X^B 8:1/X

Choose a model that best fits the data set you have been given and enter the values. This example will look at bacterial growth using an exponential model. Choose **6**.

X	Υ
1	20
2	30
3	45
4	67.5



## **Eureka Math: CASIO Technology Instructions**





Press AC to clear the data entry and press SHFT 1 to see the STAT options. Choose 1 = and select A to see the start value then repeat SHFT 1 5 2 = to find B the growth rate.	1:Type 2:Data 3:Sum 4:Var 5:Re9 6:MinMax  1:A 2:B 3:r 4:% 5:9  A 13.333333333 B
To predict an X $(\hat{x})$ (called X-hat) value given a Y, first enter the Y value then press  AC 1 2 0 SHFT 1 5 4 =.	1:Type 2:Data 3:Sum 4:Var 5:Re9 6:MinMax  1:A 2:B 3:r 4:2 5:9  1202  5.419022583

## **Eureka Math: CASIO Technology Instructions**





To predict a Y  $(\hat{y})$  (called Y-hat) value for a given x value press **AC 7** SHIFT **1 5 5 =** .

1:Type 3:Sum 5:Rea	2:Data 4:Var 6:MinMax
1:A 3:r 5:0	2:B 4:%
7≎ <sup>siar</sup>	0
	227.8125