

Exploring Residuals

For the Teacher

Objectives:

Using the **RESIDUALS** applet, the student will be able to compute residual values and display their graph as another way to determine how good the regression equation fits the data.

Functionality:

When the student selects **START**, the **RESIDUALS NOTE** will be displayed. It is important to load your two data sets into the **RESIDUAL** applet. Follow the directions in the note.

RESIDUALS NOTE
Before continuing return to Statistics applet, go [HOME] and store x values and actual data to L1 and L2, respectively.
[SPACE] PAGE [v] [A] [2] [BKSP]

The student should then view the **SKETCH** to get a definition of what residuals are and see a visual representation of them.

RESIDUALS ARE VERTICAL DISTANCES BETWEEN ACTUAL AND PREDICTED VALUES.
[STD] [NEWP] [TEXT] [DRAW]

VIEWS allows the student to choose the type fit, to use Auto Scale to view the scatterplot of the data, and the selected fit, and to analyze the residuals.

DEF 1. Choose fit
Auto Scale
2. View predict
3. Residuals
4. Plot residu...
[CANCEL] [OK]

Choose fit takes the student to the **RESIDUAL SYMBOLIC SETUP** to choose the type fit for the scatterplot of data.

20 RESIDUALS SYMBOLIC SETUP
ANGLE MEASURE: Radians
\$1FIT: Power \$2FIT: Linear
\$3FIT: Linear \$4FIT: Linear
\$5FIT: Linear
CHOOSE STATISTICS MODEL TYPE
[CHOOSE]

AutoScale to see a scatter plot of the data and the regression equation chosen in the symbolic setup.

ZOOM [TRAC] [(X,Y)] FIT [DEFN] [MENU]

View Predict calculates the predicted values and places them in C3.

n	C1	C2	C3	C4
1	140	25	22.71280	
2	172	20	20.6876	
3	110	25	25.334	
4	160	14	21.3777	
5	300	17	16.0732	
6	141	23	22.6346	
140				
EDIT INS SORT BIG 2VAR STATS				



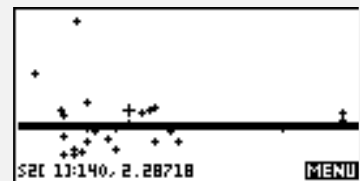
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Residuals subtracts the actual values in C2 and subtracts the predicted values C3 and stores this difference in C4.

Plot residuals will display a scatter plot of the residuals.

n	C1	C2	C3	C4
1	140	25	22.7128	2.28718
2	172	20	20.6876	-.68762
3	110	25	25.3399	-.33896
4	160	19	21.3777	-.37777
5	300	17	16.0732	-.926832
6	141	23	22.6396	-.360408
140				
EDIT INS SORT BIG 2VAR=STATS				



Ideas can be applied to:

Algebra I, Algebra II, Precalculus, Statistics, Chemistry, Biology, Physics

Programs associated with this applet:

.R.PF, .R.PR, .R.RS, .R.PS, .R.S, .R.SV

