

Warm Up

5/8/19

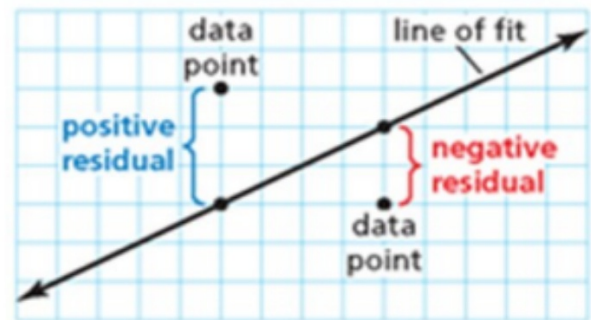
Delta Math

Rounding Practice

Go to deltamath.com and login

RESIDUALS

for Line of Best Fit Equations



Residuals

A residual is the difference between the actual value and the Predicted value of a data set.

Residual value = Actual - Predicted



Residuals on the Calculator

Make sure you have:

1. Inputted the X & Y values
2. Calculated the Line of Best Fit equation

3. **STAT** **ENTER**

4. Highlight L_3 **ENTER**

5. **2nd** **STAT** **7** **ENTER**

1.

x	y	Predicted Value	Residual Value
5	3		0.57
10	4		-0.86
15	9		1.71
20	7		-2.71
25	13		0.86
30	15		0.43

Which value of x has the largest residual? What does that mean?

20 → resid of -2.71

It has the biggest difference between the actual and predicted values

What percent of the data has a positive residual?

$\frac{4}{6} \rightarrow 67\%$

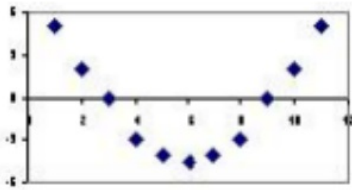
Which value of x has the smallest residual? What does that mean?

30 → resid. of 0.43

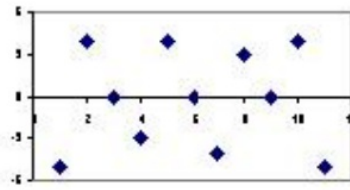
The actual and predicted values are the closest.

Residual Plots

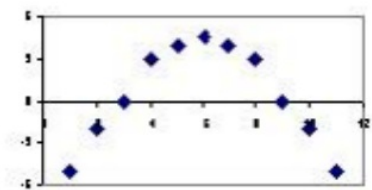
To determine if the equation fits the data, look for uniform scatter on the residual plot



NOT A GOOD
FIT
(Non-linear)



↑
**Good fit for the
data
(Linear)**



NOT A GOOD
FIT
(Non-linear)

Number of Police Cars on a Given Highway	3	1	4	5	7	2	8	6	9
Average Speed of Motorists	64	71	61	58	56	66	52	53	60
Residuals	0.22	3.56	-0.94	-2.11	-0.44	0.39	-2.61	-5.28	7.22

FINISH FOR HOMEWORK!!!

1. Line of Best Fit _____
2. Correlation Coefficient _____
3. Add the residual values to the table above.
4. Look at the residual plot, is this equation a good fit for the data? Why or why not?
5. What percentage of your residuals are negative?

Number of Police Cars on a Given Highway	3	1	4	5	7	2	8	6	9
Average Speed of Motorists	64	71	61	58	56	66	52	53	60
Residuals									

6. According to the line of best fit, the predicted average speed of motorists when there are 2 police cars on the highway is _____ the actual speed.

What type of residual is this? _____

7. The residual when there is 4 police cars is _____ which means the actual average speed is _____ than the predicted average speed.