

Comparing Residuals Worksheet

1. Is there a relationship between the fat grams and the total calories in fast food? The chart below shows the total fat and calories for fast food items.

Total Fat (g)	Total Calories
9	260
13	320
21	420
30	530
31	560
31	550
34	590
25	500
28	560
20	440

a. Calculate the Linear Regression Model for the Data. (round to two decimal places)

b. Calculate the Exponential Regression Model for the Data (round to two decimal places)

c. Find the residuals for each model. (round to one decimal place)

Linear Regression

Exponential Regression

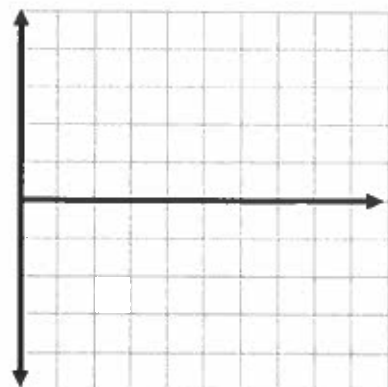
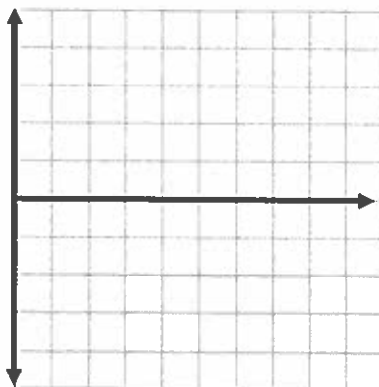
Total Fat	Total Calories	Predicted Value	Residual Value
9	260		
13	320		
21	420		
30	530		
31	560		
31	550		
34	590		
25	500		
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20	440		

d. Create a residual plot for each model. Use the residual plot to determine which is a better model.

Linear Regression

Exponential Regression



2. A rapidly growing bacteria has been discovered. Its growth rate is shown in the chart.

Hours since observation began	Number of bacteria in the sample
0	20
1	40
2	75
3	150
4	297
5	510

a. Calculate the Linear Regression Model for the Data. (round to two decimal places)

b. Calculate the Exponential Regression Model for the Data. (round to two decimal places)

c. Find the residuals for each model. (round to one decimal place)

Linear Regression

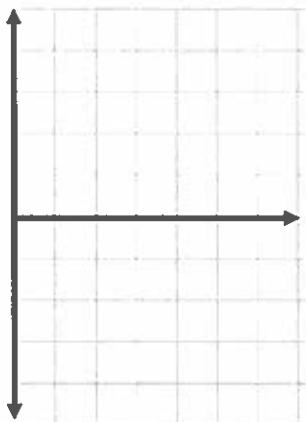
Hours since observation began	# of bacteria	Predicted Value	Residual Value
0	20		
1	40		
2	75		
3	150		
4	297		
5	510		

Exponential Regression

Hours since observation began	# of bacteria	Predicted Value	Residual Value
0	20		
1	40		
2	75		
3	150		
4	297		
5	510		

d. Create a residual plot for each model. Use the residual plot to determine which model is a better fit.

Linear Regression



Exponential Regression

