Battle Creek Cereal is trying a variety of packaging sizes for their Crispy Puffs cereal. Below is a list of six current packages. Below is the table of data collected and a scatterplot representing the data.

|  |  |
| --- | --- |
| *Packaging Cardboard (* | *Net Weight of Cereal (grams)* |
| *34* | *21* |
| *150* | *198* |
| *218* | *283* |
| *260* | *355* |
| *325* | *567* |
| *357* | *680* |
| *471* | *1020* |

1. Describe the scatterplot, consider association, form, strength and outliers.
2. Find the equation for the line of best fit. Interpret the meaning of the slope and y-intercept of your model in the context of this problem. Does the y-intercept make sense in the context of the problem?
3. A residual is a measure of how far a prediction is from what is actually observed.

**The residual is the y-value predicted by the best-fit model subtracted from the actual observed y-value. A residual can be graphed with a vertical segment that extends from the observed point to the line or curve made by the best-fit model. It has the same units as the y-axis.**

1. How much cereal will a box hold that is 260 ? What is the residual for the 260 ? **Refer to back #3 for help with finding the residual!**
2. What is the residual for the box? Mark the residual on your scatterplot, **including drawing a vertical line from the actual to the predicted on the line of best fit.**
3. What does it mean when a residual is positive? What does it mean when a residual is negative?
4. The warehouse store wants to offer a super-sized box.
	1. The residual for this box is 1005 grams. Using your equation for the line of best fit, what is the actual weight of a 600 box?

* 1. Why do you suppose the residual is so large?
1. Armen was concerned about the amount of sugar in his diet, so he went to the store and collected data from several cereal boxes. Armen used the data to create a model that related the sugar in cereal to calories:

Where *s* is the amount of sugar in grams and *c* is the number of calories in one cup of cereal.

* 1. What does a negative residual mean in this context? Is a cereal with a positive or negative residual better for Armen’s diet?
	2. Interpret the meaning of the slope and y-intercept in the context of the problem. Does the y-intercept make sense in the context of the problem?