**Topic:** Residuals and R-Squared **Name**: _____

**What am I learning today?**

_____

_____

**Main Ideas/ Questions**

Residuals

**Notes**

**Residuals** – The _____ between an observed/actual value of the response variable and the value _____ by the regression line ($y = ax + b$)

residual = (actual y-value) – (predicted y-value)

***Residuals should be fairly _____ and close to _____.

***Large residuals shows which numbers are _____!

Example

**Referring back to the backpackers…**

| **Body weight (lbs.):** | 120 | 187 | 109 | 103 | 131 | 165 | 158 | 116 |
|---|---|---|---|---|---|---|---|---|
| **Backpack (lbs.):** | 26 | 30 | 26 | 24 | 29 | 35 | 31 | 28 |

*Complete the following residual table.*

| x | Actual Y | Equation | Predicted Y | Residual |
|---|---|---|---|---|
| | | | | |
| | | | | |
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**Topic:** Residuals and R-Squared **Date**: _____

Example (CONT)

*Using the residual table from page 1, answer the following…*

1) Identify any possible outliers.

a) Most of the residual values are between…..

b) List any possible outliers.

c) Explain what these values mean in context.

2) What does a positive residual mean in context?

3) What does a negative residual mean in context?

**Notes**

The meaning of R-Squared

**R-Squared** – The _____ of the difference in y-values that can be _____ by the regression line.

Example

**Referring back to the backpackers…**

The correlation coefficient (r) was r = 0.795

$R^2$= _____ = 0.632, which means:

What percentage is due to lurking variables?

Name two possible lurking variables.

Using the residual table, correlation, and r-squared value, is this line a good fit or not? Explain.

**Summary**

Summarize the lesson in your own words