(a) The equation for the line is $\hat{y} = 560.65 - 3.0771x$ where $\hat{y}$ is the calories consumed and $x$ is the time spent at the table.

(b) The $y$-intercept says that if there is no time spent at the table, we would predict the average number of calories consumed to be 560.65. In this case that is extrapolation as the smallest amount of time measured was 20 minutes. Also, clearly, if the children spend no time at the table, they cannot consume 560 calories. The slope says that for each additional minute at the table we can expect the average caloric consumption to decrease by 3.0771 calories.

(c) Parameter: $\beta =$ true slope of the population regression line relating time at the table to calorie consumption.

Hypothesis:

$Ho: \beta = 0$

$Ha: \beta < 0$

Assess Conditions:

- **Linear**: The scatterplot is approximately linear. (must sketch graphs if not given in question)
- **Independent**: There were 20 toddlers observed. This is clearly less than 10% of all possible toddlers.
- **Normal**: The histogram is mound shaped and approximately symmetric so the residuals could follow a Normal distribution.
- **Equal Variance**: The residual plot shows roughly equal scatter for all $x$ values.
- **Random**: The data come from a random sample.

Name Test: T test for Linear Regression

Test Statistic: $T = 3.62, df = 18$

Obtain p-value: P value (one sided) = 0.001.

Make a Decision: Since the P-value is 0.001, which is less than 0.01 we reject the null hypothesis.

State a Conclusion: Therefore, we can conclude that there is convincing evidence of a negative linear relationship between time at the table and caloric consumption.