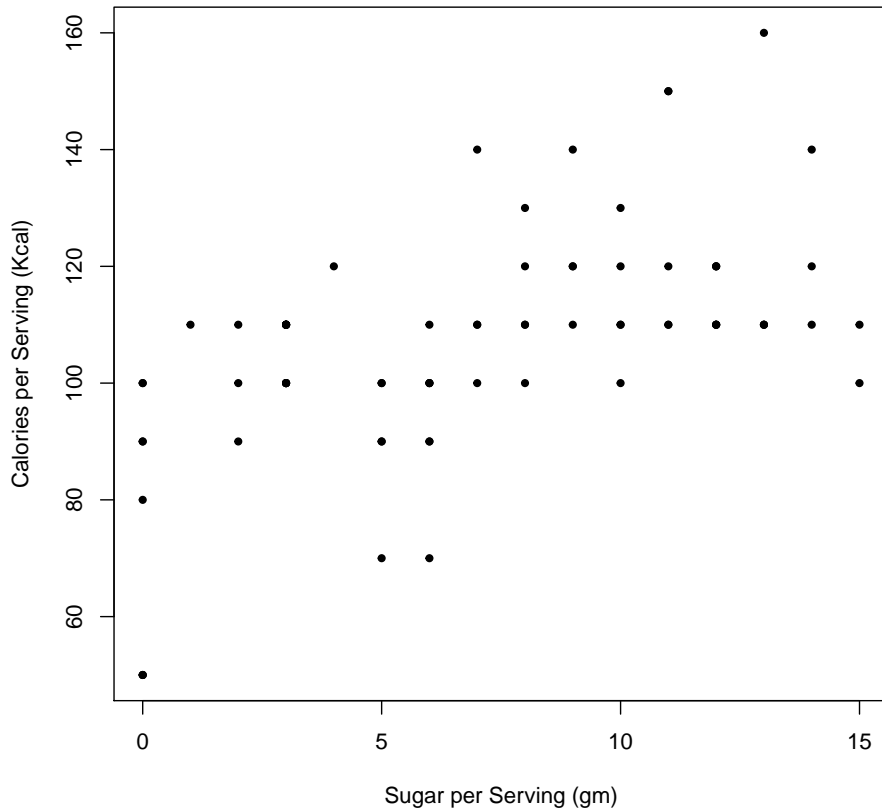# STAT 217: Regression Equation 10/19

1. Draw in a best fit line on the scatterplot above.

2. Write out the regression equation for the line that you drew. Use descriptive words instead of x and y.

3. Draw a triangle at the estimated number of calories per serving when there are 10 grams of sugar per serving in the cereal. Write your estimate below.

4. Label on the graph and report the fitted value for calories when sugar=7.

5. Label and report $\widehat{cal}$ when there are 3 grams of sugar per serving.

6. Label the residual for the point $(5, 70)$ and the point $(13, 160)$. Estimate the value of each.

Now let's have R estimate the regression line for us.

```
cereal.fit <- lm(calories~sugar, data = cereal)
summary(cereal.fit)

##
## Call:
## lm(formula = calories ~ sugar, data = cereal)
##
## Residuals:
##    Min     1Q Median    3Q    Max
## -39.65  -9.47   0.47  10.47  38.05
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)   89.649      3.448  25.997  < 2e-16 ***
## sugar          2.485      0.420   5.916 9.17e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 16.2 on 75 degrees of freedom
## Multiple R-squared:  0.3182,Adjusted R-squared:  0.3091
## F-statistic:    35 on 1 and 75 DF,  p-value: 9.17e-08
```

7. Write out R's estimated regression equation.

8. What is the estimated number of calories per serving when there are 10 grams of sugar per serving in the cereal, according to R's model?

9. What is the fitted value when sugar=7 according to R's model?

10. Interpret the slope estimate.

11. Interpret the y-intercept estimate.