PART 1. Linear regression

**Question 1. Based on the scatterplot, do you think that we will find a significant linear relationship between the size of the posterior hippocampus and the number of months spent as a taxi driver? Is the relationship positive or negative?**

**Question 2. What are the appropriate null and alternative hypotheses for the equivalent t-test of the regression slope?**

$H_0$: \\
$H_A$: \\

**Question 3. Write out the prediction equation. What is the point estimate of the slope ($b$)? What is the point estimate of the y-intercept ($a$)?**

**Question 4. What is the 95% CI for $\beta$?**
Question 5. What is the P-value reported by Minitab for the regression slope using the t-test? What is the P-value reported by Minitab using ANOVA? What do you notice about these two values?

- t-test P-value = ___________
- ANOVA P-value = ___________

Question 6. What are your conclusions about the slope of the regression of posterior hippocampus volume on months as a taxi driver?

Question 7. What proportion of the variation in posterior hippocampus volume is explained by the number of months driving a taxi?

Question 8. Based on this scatterplot, do you think that we will find a significant linear relationship between the size of the anterior hippocampus and the number of months spent as a taxi driver? Is the relationship positive or negative?
Question 9. Write out the prediction equation for this regression analysis. What is the point estimate of the slope (b)? What is the point estimate of the y-intercept (a)?

Question 10. Are the results for the anterior hippocampus similar to what was found earlier for the posterior hippocampus? What is the P-value for this comparison?

PART 2. Correlation analysis

Question 11. What is the P-value reported by Minitab?  
\[ P\text{-value} = \_\_\_\_\_\_\_\_\_ \]

Question 12. What is the value of your test statistic? Does the P-value you found using the test statistic and the t-table correspond to the P-value reported by Minitab?

Question 13. What is the estimated correlation coefficient for the anterior hippocampus and months as taxi driver? What is the P-value reported by Minitab?

\[ r = \_\_\_\_\_\_\_ \]

\[ P\text{-value} = \_\_\_\_\_\_\_\_\_ \]