There is a data set built into R called `mtcars` that includes several measures on different types of cars. Learn more about the data set using `?mtcars`. Where applicable, complete the following questions in RStudio *and write the code you used below.*

Question 1

We seek to explain the fuel efficiency of cars using their *weight per gallon*. Summarize the association between the fuel efficiency (measured in miles per gallon) and the weight of the car using a scatter plot. Write out the code you used.

Question 2

What is the corresponding correlation coefficient? Write out your code used to obtain it.

Question 3

What is the corresponding linear model (we will call it **Model 1**)? Write out your code used and the equation of the line based on the coefficient values you see in the output.

Question 4

Gautam makes a second linear model (call it **Model 2**) explaining fuel efficiency with *horsepower*. He finds that the slope of **Model 2**'s line is less than that of **Model 1**'s, and concludes that miles per gallon has a stronger linear relationship with weight than with horsepower. Tiffany, however, argues that it would be better to use correlation coefficients to determine which pair of variables (mpg and wt, mpg and hp) has the stronger linear relationship. Is she right? Explain in 1-2 sentences.

Question 5

Based on **Model 1**, Which car has the lowest fuel efficiency given its weight? State the name of the car and provide supporting code for your answer.