Assignment - Chapter 6

Complete the following problems related to Chapter 6. Upload to Canvas a single pdf containing your work before the deadline.

1. A study has found a linear relationship between the number of hours spent on exercise per week and the resting heart rate of adults. From the data collected, the average number of hours spent on exercise per week is 5.2 and the standard deviation for hours spent on exercise is 1.8. The average resting heart rate is 72 beats per minute, and the standard deviation for resting heart rate is 8 beats per minute. Lastly, the correlation coefficient $r = -0.45$.

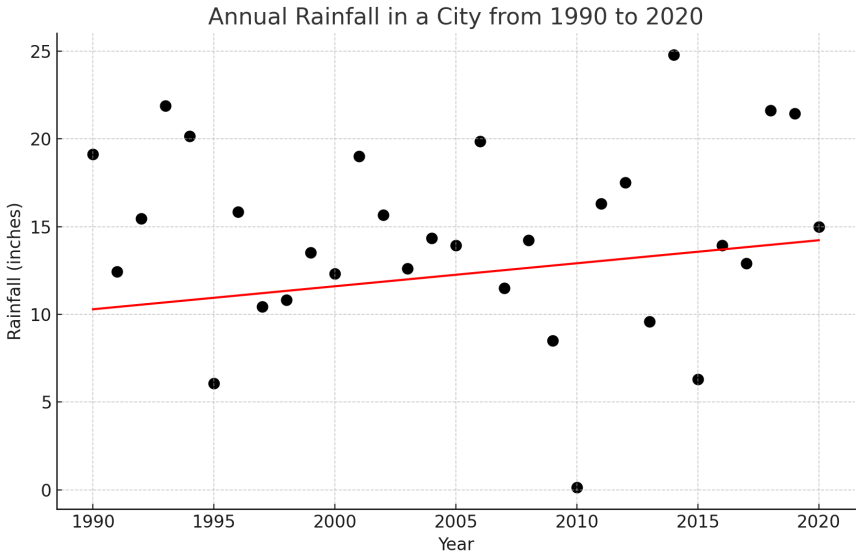
   (a) Calculate the line of best fit that predicts the resting heart rate based on the number of hours spent on exercise per week.

   (b) Interpret the slope in context of the problem.

   (c) Interpret $y-$intercept in context of the problem. Does it make sense in real life?

2. The following scatterplot shows the data on the annual rainfall (in inches) in a Seattle, Washington from 1990 to 2020. The regression line is given as:

$$\text{Rainfall} = -250.4 + 0.131 \times \text{Year}$$



   (a) Interpret the slope in context of the problem.

   (b) Interpret $y-$intercept in context of the problem. Does it make sense in real life?

   (c) Predict the annual rainfall in Seattle in year 2000. Is it a good prediction? Explain your reasoning.

   (d) Predict the annual rainfall in Seattle for year 2025. Is it a good prediction? Explain your reasoning.