0.1. a) Plot the following data points on a graph:

\[(0, 14.6), (5, 24.5), (10, 21.8), (15, 34.5), (20, 35.1), (25, 43.0)\].

b) Complete the following table:

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
<th>xy</th>
<th>x^2</th>
<th>y^2</th>
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</table>

Average


c) Using the table above, compute the slope \( m \) and the \( y \)-intercept \( b \) for the regression line. Then plot this line on the graph above.

d) Using the table above, compute the correlation \( r \) of data points.
0.2. Which of the following plots (possibly more than one)

a) seem appropriate for a linear regression? ________________

b) have positive correlation between $x$ and $y$? ________________

c) have negative correlation between $x$ and $y$? ________________

![Plot 1](image1.png)

![Plot 2](image2.png)

![Plot 3](image3.png)

![Plot 4](image4.png)
0.3. For the following scatter plots, order from largest to smallest the values of
a) $r^2$ for the data sets plotted:

b) $r$ for the data sets plotted:
0.4. Use the data table on the price of Toyota Corolla’s in problem 31 on the attached page to answer the following questions.

a) Using a spreadsheet, plot the scatterplot of the price (y-axis) versus the age (x-axis) of the car. Does a linear regression seem appropriate?

b) Using the spreadsheet, compute the linear regression line.

c) What does the y-intercept of the regression line mean?

d) What does the slope of the regression line mean?

e) The data doesn’t fit exactly to the regression line. What other variables might be important in determining the price of a car?

0.5. Use the data table regarding height/weight/body fat in problem 43 on the attached page to answer the following questions.

a) Use a linear regression to approximate the body fat of a person from their waist size. Give an interpretation of the slope of the regression line.

b) Use a linear regression to approximate the body fat of a person from their weight. Give an interpretation of the slope of the regression line.

c) From the above data, does waist size or weight seem to be a better predictor of body fat percentage? Explain.

d) Using a spreadsheet (need the Data Analysis Toolkit for Excel), compute a multiple variable linear regression for the body fat (y-variable) in terms of height and weight (x-variables).

e) What is the value of $r^2$ for the multiple linear regression? Is this a substantial improvement from the single variable regressions above?