In a study examining the relation of math ability to belief that math ability was innate, belief was considered the predictor variable. The scores for participants are shown below:

|  |  |
| --- | --- |
| Math Ability | Belief that math ability is innate |
| 66 | 7 |
| 70 | 4 |
| 50 | 10 |
| 45 | 12 |
| 57 | 6 |
| 65 | 6 |

1. Make a scatter plot of the scores.
2. Describe the pattern of association.
3. Use the six steps of hypothesis testing to determine if there is a significant relationship between math ability and innateness belief, using the p <.05 criterion.

A cognitive psychology conducted a study of whether familiarity of words predicts the time it takes to press a button indicating whether a word is singular or plural. All participants being given the same words. Familiarity with words was rated at a later time a on 7 point scale (high = familiar), and the scores are listed below.

|  |  |
| --- | --- |
| Familiarity | Response Time |
| 6 | 1.25 |
| 2 | 3.16 |
| 3 | 2.84 |
| 4 | 2.05 |
| 5 | 1.75 |
| 6 | 1.04 |
| 3 | 2.25 |

1. Write out the regression equation.
2. Does familiarity predict response time? Write out the six steps to hypothesis testing using the p < .05 level.
3. Predict the reaction time for a person who rates familiarity as a 5.
4. Include a scatter plot.

Word ratings can be predicted by how well we can type them on the computer (similar to the so called QWERTY effect). However, it is also important to control for word and letter frequency, as those predict our ratings as well. Using *p* < .05, which predictor seems to be the best?

|  |  |  |  |
| --- | --- | --- | --- |
| Letter Frequency | Word Frequency | Typing Speed | Rating |
| 4.69 | 7.51 | 58.92 | 3.27 |
| 3.55 | 7.80 | 61.24 | 2.91 |
| 5.25 | 7.12 | 59.71 | 2.79 |
| 3.25 | 5.65 | 58.50 | 2.62 |
| 3.38 | 6.22 | 60.00 | 1.89 |
| 3.67 | 5.80 | 61.13 | 2.71 |
| 3.64 | 5.85 | 59.70 | 2.54 |
| 4.85 | 5.59 | 61.96 | 2.24 |
| 4.30 | 6.26 | 59.07 | 2.50 |
| 5.20 | 5.65 | 61.06 | 2.78 |
| 4.87 | 7.08 | 59.78 | 2.82 |
| 5.01 | 5.53 | 59.02 | 3.09 |
| 4.58 | 4.98 | 61.63 | 2.09 |
| 3.09 | 6.70 | 61.19 | 3.18 |
| 4.00 | 6.16 | 58.16 | 2.99 |

1. Write out the regression equation predicting rating with letter frequency, word frequency, and typing speed.
2. Include the beta values.
3. Write out the six steps to hypothesis testing using the p < .05 level.
4. Include a scatter plot.