# biostat1_exam2_tk

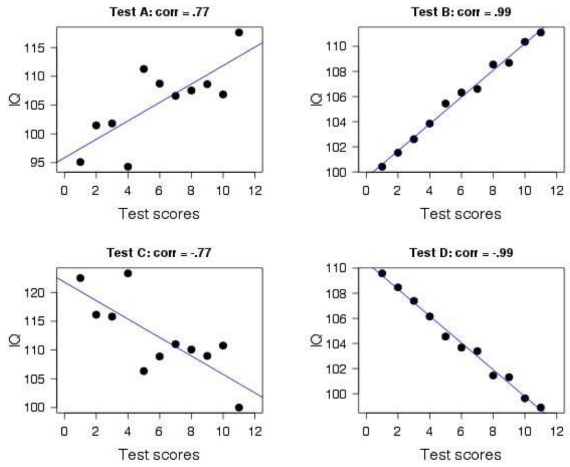
```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --

## v ggplot2 3.3.5     v purrr   0.3.4
## v tibble  3.1.4     v dplyr   1.0.7
## v tidyr   1.1.3     v stringr 1.4.0
## v readr   2.0.1     v forcats 0.5.1

## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

# Problem 2

**Problem 2**

Researchers investigated the relationships between the results of four different visual tests (Test A, B, C, and D) and IQ. They randomly selected 44 subjects and split them into 4 groups of equal size. Each subject had his/her IQ evaluated and was then given one of the four tests. For each test, the researchers made a scatter plot of the subjects' test scores and their IQs and computed the corresponding sample correlation.




a) [Select one correct answer.] Which of the following statements correctly describes the above figure? (2 points)

I. Higher scores on Tests C and D correspond to higher IQ.
II. Higher scores on Tests A and C correspond to higher IQ.
III. The relationship between scores on Test A and IQ is stronger than the relationship between scores on Test D and IQ.
IV. Subjects with similar scores on Test A have a larger spread of IQs than subjects with similar scores on Test B.

Researchers fit a simple linear regression relating IQ to test score using data from one of the four groups of subjects. Here is part of the regression output:

Coefficients:

| | Estimate | Std. Error | t value | Pr(>\|t\|) |
|---|---|---|---|---|
| (Intercept) | 121.7847 | 2.9582 | 41.169 | $1.47e^{-11}$ |
| Test score | -1.6031 | 0.4362 | _____ | _____ |

Model Information:

| |
|---|
| Residual standard error: 4.574 with 9 degrees of freedom |
| R-squared: 0.5929 |
| Adjusted R-squared: 0.5538 |
| F-statistic: 13.51 with 1 and 9 DF and a p-value of 0.00511 |

b) [Select one correct answer.] Which test's scores did researchers use as the predictor in the regression? (4 points)

I. Test A
II. Test B
III. Test C
IV. Test D