

Feedback — Midterm

[Help](#)

You submitted this quiz on **Sat 2 Nov 2013 1:45 PM PDT (UTC -0700)**. You got a score of **22.00** out of **25.00**. You can [attempt again](#), if you'd like.

Question 1

Which of the following are characteristics of experimental research?

| Your Answer | Score | Explanation |
|---|-------------|-------------|
| <input type="radio"/> Random sampling from a population | | |
| <input type="radio"/> Random assignment to treatment conditions | | |
| <input checked="" type="radio"/> Both a and b | ✓ 1.00 | |
| <input type="radio"/> None of the above | | |
| Total | 1.00 / 1.00 | |

Question 2

The distribution of household income in the United States, currently, is:

| Your Answer | Score | Explanation |
|--|-------------|-------------|
| <input type="radio"/> Uniform | | |
| <input type="radio"/> Normal | | |
| <input type="radio"/> Negatively skewed | | |
| <input checked="" type="radio"/> Positively skewed | ✓ 1.00 | |
| Total | 1.00 / 1.00 | |

Question 3

When distributions are skewed, the most accurate measure of central tendency is:

| Your Answer | Score | Explanation |
|---|-------------|-------------|
| <input type="radio"/> The mean | | |
| <input type="radio"/> The skew | | |
| <input checked="" type="radio"/> The median | ✓ 1.00 | |
| <input type="radio"/> The kurtosis | | |
| Total | 1.00 / 1.00 | |

Question 4

Given a distribution of scores, the average of the squared deviation scores is equal to:

| Your Answer | Score | Explanation |
|---|-------------|-------------|
| <input type="radio"/> The standard error | | |
| <input type="radio"/> The sum of squares | | |
| <input checked="" type="radio"/> The variance | ✓ 1.00 | |
| <input type="radio"/> The standard deviation | | |
| Total | 1.00 / 1.00 | |

Question 5

Complete the following syllogism: SS is to SD as SP is to:

| Your Answer | Score | Explanation |
|-------------|-------|-------------|
|-------------|-------|-------------|

☐ Standard deviation

☐ Standard error

☐ Correlation

☒ Covariance ✗ 0.00

Total 0.00 / 1.00

Question 6

Pearson's product moment correlation coefficient (r) is used when X and Y are:

| Your Answer | Score | Explanation |
|-------------|-------|-------------|
|-------------|-------|-------------|

☐ Both categorical variables

☒ Both continuous variables ✓ 1.00

☐ Both nominal variables

☐ Both dichotomous variables

Total 1.00 / 1.00

Question 7

Which of the following pairs of variables is most likely to be negatively correlated?

| Your Answer | Score | Explanation |
|-------------|-------|-------------|
|-------------|-------|-------------|

☐ High school (Grade Point Average) GPA and college GPA

☐ Hours studying per week and college GPA

☒ Hours watching TV per week and college GPA ✓ 1.00

☐ College GPA and IQ

Total

1.00 / 1.00

Question 8

Systematic measurement error represents:

| Your Answer | Score | Explanation |
|---|-------------|-------------|
| <input type="radio"/> bias | | |
| <input checked="" type="radio"/> chance error | ✗ 0.00 | |
| <input type="radio"/> outliers | | |
| <input type="radio"/> covariance | | |
| Total | 0.00 / 1.00 | |

Question 9

We all know that correlation does not imply causation but correlations are useful because they can be used to assess:

| Your Answer | Score | Explanation |
|---|-------------|-------------|
| <input type="radio"/> Reliability | | |
| <input type="radio"/> Validity | | |
| <input type="radio"/> Prediction errors | | |
| <input checked="" type="radio"/> All of the above | ✓ 1.00 | |
| Total | 1.00 / 1.00 | |

Question 10

In a regression analysis, which distribution will have the largest standard deviation?

| Your Answer | Score | Explanation |
|---|-------------|-------------|
| <input type="radio"/> the predicted scores on the outcome variable, \hat{Y} | | |
| <input type="radio"/> the residuals | | |
| <input checked="" type="radio"/> the observed scores on the outcome variable, Y | ✓ 1.00 | |
| <input type="radio"/> the standardized regression coefficients | | |
| Total | 1.00 / 1.00 | |

Question 11

The difference between an observed score and a predicted score in a regression analysis is known as:

| Your Answer | Score | Explanation |
|---|-------------|-------------|
| <input type="radio"/> Standard error | | |
| <input type="radio"/> Chance error | | |
| <input type="radio"/> Sampling error | | |
| <input checked="" type="radio"/> Residual | ✓ 1.00 | |
| Total | 1.00 / 1.00 | |

Question 12

In a simple regression analysis with outcome variable Y , the standardized regression coefficient for X will always equal:

| Your Answer | Score | Explanation |
|--|-------------|-------------|
| <input checked="" type="radio"/> The correlation coefficient | ✓ 1.00 | |
| <input type="radio"/> The square root of the correlation coefficient | | |
| <input type="radio"/> The unstandardized regression coefficient | | |
| <input type="radio"/> The square root of the unstandardized regression coefficient | | |
| Total | 1.00 / 1.00 | |

Question 13

If the regression line in a scatterplot is horizontal then what is the regression coefficient?

| Your Answer | Score | Explanation |
|------------------------------------|-------------|-------------|
| <input type="radio"/> -1 | | |
| <input checked="" type="radio"/> 0 | ✓ 1.00 | |
| <input type="radio"/> 1 | | |
| <input type="radio"/> Undefined | | |
| Total | 1.00 / 1.00 | |

Question 14

In a regression analysis, if the residuals are correlated with X then what assumption has most likely been violated?

| Your Answer | Score | Explanation |
|---|-------|-------------|
| <input type="radio"/> independence assumption | | |

☐ homogeneity of variance assumption

☒ homoscedasticity assumption ✓ 1.00

☐ univariate normal assumptions

Total 1.00 / 1.00

Question 15

When converting from an unstandardized to a standardized multiple regression analysis which of the following values will change?

| Your Answer | Score | Explanation |
|-------------|-------|-------------|
|-------------|-------|-------------|

☒ regression coefficients ✓ 1.00

☐ t values

☐ p values

☐ multiple R squared

Total 1.00 / 1.00

Question 16

In multiple regression what is the difference between R and R^2 ?

| Your Answer | Score | Explanation |
|-------------|-------|-------------|
|-------------|-------|-------------|

☒ R is the correlation between predicted and observed scores whereas R^2 is the percent of the variance in Y that can be explained by the regression model ✓ 1.00

☐ R is the correlation between variables X and Y whereas R^2 is the correlation between the predicted and observed scores

☐ R^2 is the correlation between the predicted and observed scores whereas R is the percent of the variance in Y that can be explained by the regression model

☐ R^2 is the percent of the variance in Y that can be explained by the regression model whereas R is the difference between the predicted and observed scores

| | |
|-------|-------------|
| Total | 1.00 / 1.00 |
|-------|-------------|

Question 17

In the faculty salary example, $\hat{Y} = 46,910 + (1,382)X_1 + (502)X_2 - (3,484)X_3$, where X_1 = years since graduation, X_2 = publications, and X_3 = gender (male coded as 0 and female coded as 1). According to this model, the predicted salary for a male faculty member who just graduated (years = 0), with zero publications, is:

| Your Answer | Score | Explanation |
|-------------|-------|-------------|
|-------------|-------|-------------|

☐ \$43,426

☒ \$46,910 ✓ 1.00

☐ \$49,394

☐ \$50,394

| | |
|-------|-------------|
| Total | 1.00 / 1.00 |
|-------|-------------|

Question 18

In the faculty salary example the actual difference in average salary between men and women was NOT = \$3,484. \$3,484 is:

| Your Answer | Score | Explanation |
|-------------|-------|-------------|
|-------------|-------|-------------|

☐ The predicted difference between male and female faculty who just graduated and have no publications

☒ The predicted difference between male and female faculty who are average in years since they graduated and have an average number of publications ✓ 1.00

☐ The predicted difference between male and female faculty who just graduated and have an average number of publications

☐ None of the above

| | |
|-------|--------|
| Total | 1.00 / |
| | 1.00 |

Question 19

In multiple regression analysis, the null hypothesis assumes that the unstandardized regression coefficient, B , is zero. The standard error of the regression coefficient depends on:

| Your Answer | Score | Explanation |
|-------------|-------|-------------|
|-------------|-------|-------------|

☐ Sample size

☒ Sample size and the Sum of Squared Residuals ✗ 0.00

☐ Sample size, Sum of Squared Residuals, and the number of other predictor variables in the regression model

☐ Sample size, Sum of Squared Residuals, the number of other predictor variables in the regression model, and the p-value

| | |
|-------|--------|
| Total | 0.00 / |
| | 1.00 |

Question 20

When conducting a null hypothesis significance test, the p value represents:

| Your Answer | Score | Explanation |
|--|-------------|-------------|
| <input type="radio"/> The probability that the null hypothesis is true given the data | | |
| <input type="radio"/> The probability that the null hypothesis is false given the data | | |
| <input checked="" type="radio"/> The probability of the data given the null hypothesis is true | ✓ 1.00 | |
| <input type="radio"/> The probability of the data given the null hypothesis is false | | |
| Total | 1.00 / 1.00 | |

Question 21

Use the [R output](#) to answer the 5 questions below. The R output is from a quick analysis conducted on data collected at Columbia University and demonstrates a slight positive correlation between overall SAT score (sat) and proportion of items recalled on a working memory span task (span1). What is the unstandardized regression coefficient for working memory span in the regression equation predicting SAT?

You entered:

300.90

| Your Answer | Score | Explanation |
|-------------|-------------|-------------|
| 300.90 | ✓ 1.00 | |
| Total | 1.00 / 1.00 | |

Question 22

R output. What is the predicted SAT score for a student who scored .50 on the working memory span task (round to a possible SAT score, for example, 2400 is a possible score, 2399.56 is not)?

You entered:

| Your Answer | | Score | Explanation |
|-------------|---|-------------|-------------|
| 2000 | ✓ | 1.00 | |
| Total | | 1.00 / 1.00 | |

Question 23

R output. What percentage of variance in SAT is explained by working memory span?

You entered:

| Your Answer | | Score | Explanation |
|-------------|---|-------------|-------------|
| 3 | ✓ | 1.00 | |
| Total | | 1.00 / 1.00 | |

Question 24

R output. What is the absolute value of the largest prediction error (residual) in this example?

You entered:

| Your Answer | | Score | Explanation |
|-------------|---|-------------|-------------|
| 647.42 | ✓ | 1.00 | |
| Total | | 1.00 / 1.00 | |

Question 25

R output. What is the standard error of the sampling distribution of unstandardized regression coefficients?

You entered:

211.20

| Your Answer | | Score | Explanation |
|-------------|---|-------------|-------------|
| 211.20 | ✓ | 1.00 | |
| Total | | 1.00 / 1.00 | |