

This WeBWorK assignment is due on 12/10/2015 at 12:15pm EST.

1. (1 point) Library/UVA-Stat/setStat212-Homework12/stat212-HW12-02.pg

Suppose that the line $\hat{y} = 7 + 2x$ is fitted to the data points $(-3,1)$, $(1,8)$, and $(4,15)$. Determine the sum of the squared residuals.

Sum of the Squared Residuals = _____

Correct Answers:

- 1

2. (1 point) Library/UVA-Stat/setStat212-Homework12/stat212-HW12-13.pg

The least squares method requires that the variance σ_ε^2 of the error variable ε is a constant no matter what the value of x is. When this requirement is violated, the condition is called:

- A. heteroscedasticity
- B. homoscedasticity
- C. non-independence of ε
- D. influential observation

In regression analysis, the coefficient of determination R^2 measures the amount of variation in y that is:

- A. unexplained by variation in x
- B. caused by variation in x
- C. explained by variation in x
- D. both A and B are correct answers

Correct Answers:

- A
- C

3. (1 point) Library/UVA-Stat/setStat212-Homework12/stat212-HW12-05.pg

If the coefficient of correlation is 0.90, the percentage of the variation in the dependent variable y that is explained by the variation in the independent variable x is:

- A. 0.90%
- B. 81%
- C. 90%
- D. 0.81%

Which value of the coefficient of correlation r indicates a stronger correlation than 0.65?

- A. -0.45
- B. 0.60
- C. -0.75
- D. 0.55

Correct Answers:

- B
- C

4. (1 point) Library/UVA-Stat/setStat212-Homework12/stat212-HW12-01.pg

The symbol for the population coefficient of correlation is:

- A. ρ^2
- B. r
- C. r^2
- D. ρ

Given the least squares regression line $\hat{y} = 5 - 2x$:

- A. as x decreases, so does y
- B. as x increases, so does y
- C. the relationship between x and y is negative
- D. the relationship between x and y is positive

Correct Answers:

- D
- C

5. (1 point) Library/UVA-Stat/setStat212-Homework12/stat212-HW12-11.pg

Which of the following statistics and procedures can be used to determine whether a linear model should be employed?

- A. The t-test of the slope
- B. The standard error of estimate
- C. The coefficient of determination
- D. All of the above answers are correct

The standard error of estimate s_ε is given by:

- A. $\sqrt{SSE/(n-2)}$
- B. $\sqrt{SSE}/(n-2)$
- C. $SSE/(n-2)$
- D. $SSE/\sqrt{n-2}$

Correct Answers:

- D
- A

6. (1 point) Library/UVA-Stat/setStat212-Homework12/stat212-HW12-12.pg

The coefficient of determination R^2 measures the amount of:

- A. variation in y that is explained by variation in x
- B. variation in x that is unexplained by variation in y
- C. variation in y that is unexplained by variation in x
- D. variation in x that is explained by variation in y

In the first-order linear regression model, the population parameters of the y -intercept and the slope are:

- A. b_0 and b_1
- B. β_1 and b_0
- C. β_0 and β_1
- D. b_1 and β_0

Correct Answers:

- A
- C

7. (1 point) Library/UVA-Stat/setStat212-Homework12/stat212-HW12-06.pg

If the coefficient of correlation between x and y is close to 1, this indicates that:

- A. x causes y to happen
- B. y causes x to happen
- C. there may or may not be any causal relationship between x and y
- D. both A and B are correct answers

If the coefficient of correlation is -0.60 , then the coefficient of determination is:

- A. 0.36
- B. -0.36
- C. -0.60
- D. 0.40

Correct Answers:

- C
- A

8. (1 point) Library/ASU-topics/setStat/gust24.pg
Consider the following small data set.

Subject	x	y
1	4	30
2	16	24
3	4	29
4	5	27
5	4	28

Find the linear correlation coefficient.

$r =$ _____

Correct Answers:

- -0.902098138026678

9. (1 point) Library/ASU-topics/setStat/gust23.pg
The coefficient of determination of a set of data points is 0.96 and the slope of the regression line is -3.5 . Determine the linear correlation coefficient of the data.
answer: _____

Correct Answers:

- -0.979795897113271

10. (1 point) Library/Rochester/setStatistics6CorrelationRegression/ur_stt_6_7.pg

Construct both a 98% and a 95% confidence interval for β_1 .

$\hat{\beta}_1 = 36$, $s = 6.7$, $SS_{xx} = 48$, $n = 22$

98% : _____ $\leq \beta_1 \leq$ _____

95% : _____ $\leq \beta_1 \leq$ _____

Correct Answers:

- 33.5552873613775
- 38.4447126386225
- 33.982747974406
- 38.017252025594

11. (1 point) Library/CollegeOfIdaho/setStatistics_Ch04ScatterplotsAndCorrelation/04Stats_01_ScatterCorrelation.pg

Match the following sample correlation coefficients with the explanation of what that correlation coefficient means. Type the correct letter in each box.

- ___1. $r = 1$
- ___2. $r = .1$
- ___3. $r = .92$
- ___4. $r = -1$

- A. a strong positive relationship between x and y
- B. a perfect negative relationship between x and y
- C. a weak positive relationship between x and y
- D. a perfect positive relationship between x and y

Correct Answers:

- D
- C
- A
- B

12. (1 point) Library/Rochester/setStatistics6CorrelationRegression/ur_stt_6_6.pg

The amounts of 6 restaurant bills and the corresponding amounts of the tips are given in the below.

Bill	64.30	70.29	52.44	97.34	88.01	49.72
Tip	7.70	10.00	7.00	16.00	10.00	5.28

Use a 0.05 confidence level to find the following:

The test statistic $r =$ _____

Is there a significant correlation?

- A. Yes
- B. No

The regression equation is $\hat{y} =$ _____ $+$ _____ x .

If the amount of the bill is \$70, the best prediction for the amount of the tip is _____

Correct Answers:

- 0.91601372057186
- A
- -3.28528641806197
- 0.179321768558095
- 9.26723738100469

13. (1 point) Library/Rochester/setStatistics6CorrelationRegression/ur_stt_6_3.pg

Given the following data set,

x	1	2	3	-1	2	2	1
y	2	0	2	2	2	0	3

Compute the coefficient of correlation r

$r =$ _____

Correct Answers:

- -0.313546721942613