

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

**1. (1 point)** Library/UVA-Stat/setStat212-Homework12/stat212-HW12-08.pg

Suppose that for a given least-squares regression, the sum of squares for error is 100 and the sum of squares for regression is 205. Find the coefficient of determination.

Coefficient of Determination = \_\_\_\_\_

Correct Answers:

- 0.672131147540984

**2. (1 point)** Library/UVA-Stat/setStat212-Homework12/stat212-HW12-11.pg

Which of the following techniques is used to predict the value of one variable on the basis of the other variables?

- A. Covariance
- B. Coefficient of correlation
- C. Correlation analysis
- D. Regression analysis

The standardized residual is defined as:

- A. residual divided by the square of the standard error of estimate
- B. residual divided by the standard error of estimate
- C. residual multiplied by the square root of the standard error of estimate
- D. residual multiplied by the standard error of estimate

Correct Answers:

- D
- B

**3. (1 point)** Library/UVA-Stat/setStat212-Homework12/stat212-HW12-12.pg

The standard error of estimate  $s_e$  is a measure of:

- A. variation of  $y$  around the regression line
- B. variation of  $x$  around the regression line
- C. variation of  $y$  around the mean  $\bar{y}$
- D. variation of  $x$  around the mean  $\bar{x}$

In the simple linear regression model, the  $y$ -intercept represents the:

- A. value of  $x$  when  $y = 0$
- B. value of  $y$  when  $x = 0$
- C. change in  $x$  per unit change in  $y$
- D. change in  $y$  per unit change in  $x$

Correct Answers:

- A
- B

**4. (1 point)** Library/UVA-Stat/setStat212-Homework12/stat212-HW12-13.pg

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

- A.  $\beta_1$  and  $\beta_0$
- B.  $b_0$  and  $b_1$
- C.  $b_0$  and  $\beta_1$
- D.  $b_1$  and  $\beta_0$

In regression analysis, the residuals represent the:

- A. square root of the coefficient of determination
- B. difference between the actual  $x$  values and their predicted values
- C. difference between the actual  $y$  values and their predicted values
- D. change in  $y$  per unit change in  $x$

Correct Answers:

- B
- C

**5. (1 point)** Library/ASU-topics/setStat/gust32.pg  
The amounts of 6 restaurant bills and the corresponding amounts of the tips are given in the table below.

Bill	64.30	49.72	52.44	106.27	88.01	43.58
Tip	7.70	5.28	7.00	16.00	10.00	5.50

Find the following:

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

If the amount of the bill is \$40, the best prediction for the amount of the tip is \_\_\_\_\_

Correct Answers:

- -1.93467693760523
- 0.156034976319824
- 4.30672211518774

**6. (1 point)** Library/ASU-topics/setStat/duack4\_2\_4.pg  
A study was conducted to determine whether the final grade of a student in an introductory psychology course is linearly related to his or her performance on the verbal ability test administered before college entrance. The verbal scores and final grades for 10 students are shown in the table below.

Student	Verbal Score $x$	Final Grade $y$
1	31	35
2	71	89
3	60	68
4	40	47
5	47	60
6	46	58
7	52	59
8	52	64
9	38	47
10	70	80

Find the least squares line.

$$\hat{y} = \underline{\hspace{1cm}} + \underline{\hspace{1cm}} x$$

Should the regression be used to predict the final grade of a student with a verbal score of 100?

answer:       

*Correct Answers:*

- 0.820468839336748
- 1.1810558414332
- no

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**7. (1 point)** Library/ASU-topics/setStat/lines5.pg

For the equation  $y = 8.5x - 8$ ,

a. the y-intercept is \_\_\_\_\_, and the slope is \_\_\_\_\_.

b. the line

- A. slopes downward
- B. is horizontal
- C. slopes upward
- D. none of the above

c. use two points to graph the equation.

*Correct Answers:*

- -8
- 8.5
- C