

Feedback — Quiz: Week Two

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You submitted this quiz on **Mon 30 Mar 2015 11:37 AM PDT**. You got a score of **6.00** out of **6.00**.

Question 1

Slope being zero indicates that

Your Answer

Score

Explanation

☐ There is a strong linear relationship between X and Y.

☐ Slope does not say anything about the relationship between X and Y.

☒ There is no linear relationship between X and Y.



1.00

Good job!

Slope being zero indicates that the correlation coefficient between X and Y is zero.

Both correlation coefficient and slope measure linear relationship.

There could be any other relationship between X and Y such as quadratic, exponential etc.

☐ There is no relationship between X and Y.

Total

1.00 /

1.00

Question 2

The estimate of the intercept term β_0 cannot be negative.

Your Answer	Score	Explanation
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<input type="radio"/> True		
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<input checked="" type="radio"/> False	✓ 1.00	Great job!
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The intercept term can be negative if the mean of the dependent variable (Y) is negative.

Total	1.00 / 1.00	
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Question 3

The assumption of homoscedasticity means that the variance of Y is same for all X

Your Answer	Score	Explanation
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<input checked="" type="radio"/> True	✓ 1.00	Nice work!
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<input type="radio"/> False		
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Total	1.00 / 1.00	
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Question 4

The null hypothesis for testing the linear relationship between X and Y is

Your Answer	Score	Explanation
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<input type="radio"/> $H_0 : \beta_0 \neq 0$		
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<input checked="" type="radio"/> $H_0 : \beta_1 = 0$	✓ 1.00	Yes, you are right!
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The slope gives us an idea about the linear relationship between X and Y and in the null hypothesis we let the true slope be zero.

<input type="radio"/> $H_0 : \beta_0 = 0$		
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<input type="radio"/> $H_0 :$		
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$$\beta_1 \neq 0$$

Total 1.00 /
1.00

Question 5

The test statistic for testing $\beta_1 = 0$ follows t-distribution with degrees of freedom

Your Answer **Score** **Explanation**

☐ n

☒ $n - 2$  1.00 Great job!

From n , 2 degrees of freedom are lost in estimating the intercept term and the slope.

☐ $n - 3$


☐ $n - 1$

Total 1.00 /
1.00

Question 6

For the prediction interval, the farther away X_0 is from \bar{X} , the interval

Your Answer **Score** **Explanation**

☒ Gets wider  1.00 Yes, you got it!

The prediction interval depends on the term $\sqrt{1 + \frac{1}{n} + \frac{(x_0 - \bar{x})^2}{(n-1)s_x^2}}$.

As the distance between X_0 and \bar{X} increases, the term gets bigger and hence makes the prediction interval wider.

☐ Gets smaller

☐ Stays
the same

Total	1.00 /
	1.00