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| **1.**  The *Y-intercept* (*b*0) represents the  A) variation around the sample regression line. B) predicted value of *Y* when *X* = 0. C) predicted value of *Y*. D) change in estimated average *Y* per unit change in *X*.  **2.**  The slope (*b*1) represents the  A) predicted value of *Y* when *X* = 0. B) estimated average change in *Y* per unit change in *X*. C) variation around the line of regression. D) predicted value of *Y*.  **3.**  The least squares method minimizes which of the following?  A) SST B) SSE C) SSR D) all of the above  **4.**  The standard error of the estimate is a measure of the  A) explained variation. B) variation of the *X* variable. C) total variation of the *Y* variable. D) variation around the sample regression line.  **5.**  **TABLE 13-1**  A large national bank charges local companies for using their services. A bank official reported the results of a regression analysis designed to predict the bank's charges (*Y*)—measured in dollars per month—for services rendered to local companies. One independent variable used to predict the service charge to a company is the company's sales revenue (*X*)—measured in millions of dollars. Data for 21 companies who use the bank's services were used to fit the model:  *E*(*Y*) = *β*0 + *β*1*X*  The results of the simple linear regression are provided below.  https://angel.grantham.edu/AngelUploads/QuestionData/0833d9c5-8eda-42a7-affc-8a913a0a259a/H3446593166D46565472.jpg= -2,700 + 20*X*, S*YX* = 65, two-tailed *p* value = 0.034 (for testing *β*1)   Referring to Table 13-1, interpret the estimate of β0, the *Y-intercept* of the line.  A) There is no practical interpretation since a sales revenue of $0 is a nonsensical value. B) All companies will be charged at least $2,700 by the bank. C) About 95% of the observed service charges fall within $2,700 of the least squares line. D) For every $1 million increase in sales revenue, we expect a service charge to decrease $2,700.  **6.**  **TABLE 13-1**  A large national bank charges local companies for using their services. A bank official reported the results of a regression analysis designed to predict the bank's charges (*Y*)—measured in dollars per month—for services rendered to local companies. One independent variable used to predict the service charge to a company is the company's sales revenue (*X*)—measured in millions of dollars. Data for 21 companies who use the bank's services were used to fit the model:  *E*(*Y*) = *β*0 + *β*1*X*  The results of the simple linear regression are provided below.  https://angel.grantham.edu/AngelUploads/QuestionData/d4110163-99fb-4190-8464-e046bdaa2adb/H3446593166D46565472.jpg= -2,700 + 20*X*, S*YX* = 65, two-tailed *p* value = 0.034 (for testing *β*1)   Referring to Table 13-1, interpret the estimate of σ, the standard deviation of the random error term (standard error of the estimate) in the model.  A) About 95% of the observed service charges equal their corresponding predicted values. B) About 95% of the observed service charges fall within $65 of the least squares line. C) For every $1 million increase in sales revenue, we expect a service charge to increase $65. D) About 95% of the observed service charges fall within $130 of the least squares line.  **7.**  **TABLE 13-1**  A large national bank charges local companies for using their services. A bank official reported the results of a regression analysis designed to predict the bank's charges (*Y*)—measured in dollars per month—for services rendered to local companies. One independent variable used to predict the service charge to a company is the company's sales revenue (*X*)—measured in millions of dollars. Data for 21 companies who use the bank's services were used to fit the model:  *E*(*Y*) = *β*0 + *β*1*X*  The results of the simple linear regression are provided below.  https://angel.grantham.edu/AngelUploads/QuestionData/8ad9e4bf-34d3-4d85-b0cd-0a1aa4e095cc/H3446593166D46565472.jpg= -2,700 + 20*X*, S*YX* = 65, two-tailed *p* value = 0.034 (for testing *β*1)   Referring to Table 13-1, interpret the *p* value for testing whether*β*1 exceeds 0.  A) For every $1 million increase in sales revenue, we expect a service charge to increase $0.034. B) Sales revenue (*X*) is a poor predictor of service charge (*Y*). C) There is sufficient evidence (at the α = 0.05) to conclude that sales revenue (*X*) is a useful linear predictor of service charge (*Y*). D) There is insufficient evidence (at the α = 0.10) to conclude that sales revenue (*X*) is a useful linear predictor of service charge (*Y*).  **8.**  **TABLE 13-1**  A large national bank charges local companies for using their services. A bank official reported the results of a regression analysis designed to predict the bank's charges (*Y*)—measured in dollars per month—for services rendered to local companies. One independent variable used to predict the service charge to a company is the company's sales revenue (*X*)—measured in millions of dollars. Data for 21 companies who use the bank's services were used to fit the model:  *E*(*Y*) = *β*0 + *β*1*X*  The results of the simple linear regression are provided below.  https://angel.grantham.edu/AngelUploads/QuestionData/712fa98d-c9cd-46db-84e2-1666c4f3b468/H3446593166D46565472.jpg= -2,700 + 20*X*, S*YX* = 65, two-tailed *p* value = 0.034 (for testing *β*1)   Referring to Table 13-1, a 95% confidence interval for *β*1 is (15, 30). Interpret the interval.  A) We are 95% confident that the sales revenue (*X*) will increase between $15 and $30 million for every $1 increase in service charge (*Y*). B) At the α = 0.05 level, there is no evidence of a linear relationship between service charge (*Y*) and sales revenue (*X*). C) We are 95% confident that the mean service charge will fall between $15 and $30 per month. D) We are 95% confident that average service charge (*Y*) will increase between $15 and $30 for every $1 million increase in sales revenue (*X*).  **9.**  **TABLE 13-3**  The director of cooperative education at a state college wants to examine the effect of cooperative education job experience on marketability in the work place. She takes a random sample of 4 students. For these 4, she finds out how many times each had a cooperative education job and how many job offers they received upon graduation. These data are presented in the table below.  https://angel.grantham.edu/AngelUploads/QuestionData/ff342b0b-9e9f-4f97-967f-3ba51f1307a2/53356551X32113663363.jpg   Referring to Table 13-3, the least squares estimate of the slope is \_\_\_\_\_\_\_\_.    **10.**  **TABLE 13-3**  The director of cooperative education at a state college wants to examine the effect of cooperative education job experience on marketability in the work place. She takes a random sample of 4 students. For these 4, she finds out how many times each had a cooperative education job and how many job offers they received upon graduation. These data are presented in the table below.  https://angel.grantham.edu/AngelUploads/QuestionData/a96e7e4f-4da9-4acc-93aa-c7e03fde40e7/53356551X32113663363.jpg   Referring to Table 13-3, the least squares estimate of the *Y-intercept* is \_\_\_\_\_\_\_\_.    **11.**  **TABLE 13-3**  The director of cooperative education at a state college wants to examine the effect of cooperative education job experience on marketability in the work place. She takes a random sample of 4 students. For these 4, she finds out how many times each had a cooperative education job and how many job offers they received upon graduation. These data are presented in the table below.  https://angel.grantham.edu/AngelUploads/QuestionData/d73e7bcc-5095-486a-b257-83b1128ae3e7/53356551X32113663363.jpg   Referring to Table 13-3, the prediction for the number of job offers for a person with 2 co-op jobs is \_\_\_\_\_\_\_\_.    **12.**  **TABLE 13-3**  The director of cooperative education at a state college wants to examine the effect of cooperative education job experience on marketability in the work place. She takes a random sample of 4 students. For these 4, she finds out how many times each had a cooperative education job and how many job offers they received upon graduation. These data are presented in the table below.  https://angel.grantham.edu/AngelUploads/QuestionData/bac578af-d8d4-4416-a01e-d59d81d2a6d1/53356551X32113663363.jpg   Referring to Table 13-3, the total sum of squares (SST) is \_\_\_\_\_\_\_\_.    **13.**  **TABLE 13-3**  The director of cooperative education at a state college wants to examine the effect of cooperative education job experience on marketability in the work place. She takes a random sample of 4 students. For these 4, she finds out how many times each had a cooperative education job and how many job offers they received upon graduation. These data are presented in the table below.  https://angel.grantham.edu/AngelUploads/QuestionData/342774f3-11e5-435f-9e60-18578f8aee1f/53356551X32113663363.jpg   Referring to Table 13-3, the regression sum of squares (SSR) is \_\_\_\_\_\_\_\_.    **14.**  **TABLE 13-3**  The director of cooperative education at a state college wants to examine the effect of cooperative education job experience on marketability in the work place. She takes a random sample of 4 students. For these 4, she finds out how many times each had a cooperative education job and how many job offers they received upon graduation. These data are presented in the table below.  https://angel.grantham.edu/AngelUploads/QuestionData/d7b073d8-2374-4f27-b612-f65b3e908b7c/53356551X32113663363.jpg   Referring to Table 13-3, the error or residual sum of squares (SSE) is \_\_\_\_\_\_\_\_.    **15.**  **TABLE 13-3**  The director of cooperative education at a state college wants to examine the effect of cooperative education job experience on marketability in the work place. She takes a random sample of 4 students. For these 4, she finds out how many times each had a cooperative education job and how many job offers they received upon graduation. These data are presented in the table below.  https://angel.grantham.edu/AngelUploads/QuestionData/e858c53d-1826-4586-9a15-874a5b6a0ad3/53356551X32113663363.jpg   Referring to Table 13-3, the coefficient of determination is \_\_\_\_\_\_\_\_.    **16.**  **TABLE 13-3**  The director of cooperative education at a state college wants to examine the effect of cooperative education job experience on marketability in the work place. She takes a random sample of 4 students. For these 4, she finds out how many times each had a cooperative education job and how many job offers they received upon graduation. These data are presented in the table below.  https://angel.grantham.edu/AngelUploads/QuestionData/d1483912-4935-43c0-b0a9-9cb986c52515/53356551X32113663363.jpg   Referring to Table 13-3, the standard error of estimate is \_\_\_\_\_\_\_\_.    **17.**  **TABLE 13-3**  The director of cooperative education at a state college wants to examine the effect of cooperative education job experience on marketability in the work place. She takes a random sample of 4 students. For these 4, she finds out how many times each had a cooperative education job and how many job offers they received upon graduation. These data are presented in the table below.  https://angel.grantham.edu/AngelUploads/QuestionData/c5008d78-e942-4ab1-9caa-cb7b246c2255/53356551X32113663363.jpg   Referring to Table 13-3, the coefficient of correlation is \_\_\_\_\_\_\_\_.    **18.**  **TABLE 13-3**  The director of cooperative education at a state college wants to examine the effect of cooperative education job experience on marketability in the work place. She takes a random sample of 4 students. For these 4, she finds out how many times each had a cooperative education job and how many job offers they received upon graduation. These data are presented in the table below.  https://angel.grantham.edu/AngelUploads/QuestionData/b22cb6b1-fe06-4753-abf1-f9f3d6107851/53356551X32113663363.jpg   Referring to Table 13-3, suppose the director of cooperative education wants to obtain a 95% confidence-interval estimate for the mean number of job offers received by people who have had exactly one cooperative education job. The *t* critical value she would use is \_\_\_\_\_\_\_\_.    **19.**  **TABLE 13-3**  The director of cooperative education at a state college wants to examine the effect of cooperative education job experience on marketability in the work place. She takes a random sample of 4 students. For these 4, she finds out how many times each had a cooperative education job and how many job offers they received upon graduation. These data are presented in the table below.  https://angel.grantham.edu/AngelUploads/QuestionData/dbfbcb5e-bafc-421d-82fe-7893bd829b80/53356551X32113663363.jpg   Referring to Table 13-3, suppose the director of cooperative education wants to obtain a 95% confidence interval estimate for the mean number of job offers received by people who have had exactly one cooperative education job. The confidence interval is from \_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_.    **20.**  **TABLE 13-3**  The director of cooperative education at a state college wants to examine the effect of cooperative education job experience on marketability in the work place. She takes a random sample of 4 students. For these 4, she finds out how many times each had a cooperative education job and how many job offers they received upon graduation. These data are presented in the table below.  https://angel.grantham.edu/AngelUploads/QuestionData/af3bb4d3-2fe4-4ee4-98e8-20689a0b485c/53356551X32113663363.jpg   Referring to Table 13-3, suppose the director of cooperative education wants to obtain a 95% prediction interval estimate for the mean number of job offers received by people who have had exactly one cooperative education job. The prediction interval is from \_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_. |

