Linear Regression & Correlation · 1

The least-squares line $\hat{y} = -40 + 2.2x$ predicts y = number of lemonade cups sold from x = daily high temperature in °F. One data point has x = 83 and y = 146.7. Find its residual.

Linear Regression & Correlation · 2

The least-squares line $\hat{y} = 6.5 + 4.1x$ predicts y = commute time in minutes from x = distance from school in miles. Is the data point (2, 16.4) above or below the line?

Linear Regression & Correlation · 3

A least-squares line has correlation r = 0.85. What percent of the variation in y is explained by the linear relationship with x?

Linear Regression & Correlation · 4

A least-squares line has $r^2 = 0.16$ and a negative slope. Find the correlation r.

Linear Regression & Correlation · 5

For a data set, r = 0.64, the standard deviation of x is $s_x = 5$ and the standard deviation of y is $s_y = 6$. Find the slope b of the least-squares line.

Linear Regression & Correlation · 6

The least-squares line $\hat{y} = 5 + 2.8x$ predicts y = commute time in minutes from x = distance from school in miles. One data point has x = 4 and y = 21.3. Find its residual.

Linear Regression & Correlation · 7

The least-squares line $\hat{y} = 18 + 1.8x$ predicts y = free throws made out of 50 from x = hours of practice per week. Is the data point (6, 24.2) above or below the line?

Linear Regression & Correlation · 8

A least-squares line has correlation r = -0.85. What percent of the variation in y is explained by the linear relationship with x?

Linear Regression & Correlation · 2

ANSWER

above

Linear Regression & Correlation · 1

ANSWER

4.1

Linear Regression & Correlation · 4

ANSWER

-0.4

Linear Regression & Correlation · 3

ANSWER

72.25%

Linear Regression & Correlation · 6

ANSWER

5.1

Linear Regression & Correlation · 5

ANSWER

0.768

Linear Regression & Correlation · 8

ANSWER

72.25%

Linear Regression & Correlation · 7

ANSWER

below

Linear Regression & Correlation · 9

A least-squares line has $r^2 = 0.49$ and a positive slope. Find the correlation r.

Linear Regression & Correlation · 10

For a data set, r = 0.75, the standard deviation of x is sx = 2 and the standard deviation of y is sy = 25. Find the slope b of the least-squares line.

Linear Regression & Correlation · 11

For a data set, r = -0.9, the standard deviation of x is sx = 5 and the standard deviation of y is sy = 15. Find the slope b of the least-squares line.

Linear Regression & Correlation · 12

For a data set, r = 0.4, sx = 8, sy = 10, the mean of x is 11 and the mean of y is 41. Find the y-intercept a of the least-squares line $\hat{y} = a + bx$.

Linear Regression & Correlation · 13

A least-squares line has $r^2 = 0.09$ and a negative slope. Find the correlation r.

Linear Regression & Correlation · 14

The least-squares line $\hat{y} = 20.5 + 1.8x$ predicts y = free throws made out of 50 from x = hours of practice per week. One data point has x = 4 and y = 24.6. Find its residual.

Linear Regression & Correlation · 15

The least-squares line $\hat{y} = 900 - 12.5x$ predicts y = number of tickets sold from x = ticket price in dollars, using data with x from 10 to 40. Is it reasonable to use the line to predict y when x = 30? Answer yes or no.

Linear Regression & Correlation · 16

The least-squares line $\hat{y} = -25.5 + 0.8x$ predicts y = number of lemonade cups sold from x = daily high temperature in °F. One data point has x = 64 and y = 23.3. Find its residual.

Linear Regression & Correlation · 10

ANSWER

9.375

Linear Regression & Correlation · 9

ANSWER

0.7

Linear Regression & Correlation · 12

ANSWER

35.5

Linear Regression & Correlation · 11

ANSWER

-2.7

Linear Regression & Correlation · 14

ANSWER

-3.1

Linear Regression & Correlation · 13

ANSWER

-0.3

Linear Regression & Correlation · 16

ANSWER

-2.4

Linear Regression & Correlation · 15

ANSWER

yes

Linear Regression & Correlation · 17

The least-squares line $\hat{y} = 900 - 12.5x$ predicts y = number of tickets sold from x = ticket price in dollars. Is the data point (35, 467.4) above or below the line?

Linear Regression & Correlation · 18

A least-squares line has correlation r = -0.75. What percent of the variation in y is explained by the linear relationship with x?

Linear Regression & Correlation · 19

A least-squares line has $r^2 = 0.64$ and a negative slope. Find the correlation r.

Linear Regression & Correlation · 20

For a data set, r = -0.85, the standard deviation of x is $s_x = 10$ and the standard deviation of y is $s_y = 10$. Find the slope b of the least-squares line.

Linear Regression & Correlation · 21

The least-squares line $\hat{y} = 900 - 8.4x$ predicts y = number of tickets sold from x = ticket price in dollars. One data point has x = 32 and y = 637.1. Find its residual.

Linear Regression & Correlation · 22

The least-squares line $\hat{y} = 8 + 3.4x$ predicts y = commute time in minutes from x = distance from school in miles. Is the data point (11, 42.4) above or below the line?

Linear Regression & Correlation · 23

A least-squares line has correlation r = -0.72. What percent of the variation in y is explained by the linear relationship with x?

Linear Regression & Correlation · 24

For a data set, r = 0.75, the standard deviation of x is $s_x = 8$ and the standard deviation of y is $s_y = 20$. Find the slope b of the least-squares line.

Linear Regression & Correlation · 18

ANSWER

56.25%

Linear Regression & Correlation · 17

ANSWER

above

Linear Regression & Correlation · 20

ANSWER

-0.85

Linear Regression & Correlation · 19

ANSWER

-0.8

Linear Regression & Correlation · 22

ANSWER

below

Linear Regression & Correlation · 21

ANSWER

5.9

Linear Regression & Correlation · 24

ANSWER

1.875

Linear Regression & Correlation · 23

ANSWER

51.84%