Task card 1 Linear Regression & Correlation

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.

Task card 2 Linear Regression & Correlation

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?

Task card 3 Linear Regression & Correlation

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

Task card 4 Linear Regression & Correlation

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

Task card 5 Linear Regression & Correlation

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

Task card 6 Linear Regression & Correlation

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.

Task card 7 Linear Regression & Correlation

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?

Task card 8 Linear Regression & Correlation

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

Task card 9 Linear Regression & Correlation

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

Task card 10 Linear Regression & Correlation

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.

Task card 11 Linear Regression & Correlation

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.

Task card 12 Linear Regression & Correlation

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 $\hat{y} = a + bx$.

Task card 13 Linear Regression & Correlation

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

Task card 14 Linear Regression & Correlation

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.

Task card 15 Linear Regression & Correlation

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.

Task card 16 Linear Regression & Correlation

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.

Task card 17 Linear Regression & Correlation

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?

Task card 18 Linear Regression & Correlation

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

Task card 19 Linear Regression & Correlation

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

Task card 20 Linear Regression & Correlation

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

Task card 21 Linear Regression & Correlation

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.

Task card 22 Linear Regression & Correlation

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?

Task card 23 Linear Regression & Correlation

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

Task card 24 Linear Regression & Correlation

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

Linear Regression & Correlation Task Cards

Recording sheet · Grade 12 · Solve each problem. Residual = actual - predicted. Give percents for r^2 like 64%. For lettered choices, write the letter.

Name: _____ Date: _____

Scan to check your answers

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

Linear Regression & Correlation Task Cards: Answer Key

Grade 12 · Medium

The answers online

1. 4.1	**2.** above	**3.** 72.25%
4. -0.4	**5.** 0.768	**6.** 5.1
7. below	**8.** 72.25%	**9.** 0.7
10. 9.375	**11.** -2.7	**12.** 35.5
13. -0.3	**14.** -3.1	**15.** yes
16. -2.4	**17.** above	**18.** 56.25%
19. -0.8	**20.** -0.85	**21.** 5.9
22. below	**23.** 51.84%	**24.** 1.875