Task card 1 Linear Regression & Correlation

For a data set, r = 0.8, the standard deviation of x is sx = 8 and the standard deviation of y is sy = 5. Find the slope b of the least-squares line.

Task card 2 Linear Regression & Correlation

For a data set, r = 0.4, sx = 2, sy = 12, the mean of x is 21 and the mean of y is 111. Find the y-intercept a of the least-squares line $\hat{y} = a + bx$.

Task card 3 Linear Regression & Correlation

A least-squares line has $r^2 = 0.81$ and a negative slope. Find the correlation r.

Task card 4 Linear Regression & Correlation

The least-squares line $\hat{y} = 55 + 4.2x$ predicts y = test score from x = hours studied. One data point has x = 3 and y = 72.6. Find its residual.

Task card 5 Linear Regression & Correlation

The least-squares line $\hat{y} = 640 - 12.5x$ 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 = 21? Answer yes or no.

Task card 6 Linear Regression & Correlation

For a data set, r = 0.9, the standard deviation of x is sx = 2 and the standard deviation of y is sy = 10. Find the slope b of the least-squares line.

Task card 7 Linear Regression & Correlation

For a data set, r = -0.8, sx = 10, sy = 12, the mean of x is 20 and the mean of y is 50. Find the y-intercept a of the least-squares line $\hat{y} = a + bx$.

Task card 8 Linear Regression & Correlation

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

Task card 9 Linear Regression & Correlation

The least-squares line $\hat{y} = 8 + 2.8x$ predicts y = commute time in minutes from x = distance from school in miles. One data point has x = 12 and y = 40.5. Find its residual.

Task card 10 Linear Regression & Correlation

The least-squares line $\hat{y} = 8 + 2.8x$ predicts y = commute time in minutes from x = distance from school in miles, using data with x from 1 to 12. Is it reasonable to use the line to predict y when x = 56? Answer yes or no.

Task card 11 Linear Regression & Correlation

For a data set, r = 0.5, 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 12 Linear Regression & Correlation

For a data set, r = -0.4, sx = 8, sy = 5, the mean of x is 23 and the mean of y is 82. 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 $r^2 = 0.64$ and a negative slope. Find the correlation r.

Task card 14 Linear Regression & Correlation

The least-squares line $\hat{y} = 28 - 1.5x$ predicts y = value of the car in thousands of dollars from x = age of a car in years. One data point has x = 7 and y = 12.4. Find its residual.

Task card 15 Linear Regression & Correlation

The least-squares line $\hat{y} = 24.5 - 1.5x$ predicts y = value of the car in thousands of dollars from x = age of a car in years, using data with x from 1 to 9. Is it reasonable to use the line to predict y when x = 33? Answer yes or no.

Task card 16 Linear Regression & Correlation

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

Task card 17 Linear Regression & Correlation

For a data set, r = -0.64, $s_x = 8$, $s_y = 25$, the mean of x is 14 and the mean of y is 47. Find the y-intercept a of the least-squares line $\hat{y} = a + bx$.

Task card 18 Linear Regression & Correlation

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

Task card 19 Linear Regression & Correlation

The least-squares line $\hat{y} = 22 + 1.4x$ predicts y = free throws made out of 50 from x = hours of practice per week. One data point has x = 2 and y = 29.3. Find its residual.

Task card 20 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, using data with x from 1 to 12. Is it reasonable to use the line to predict y when x = 45? Answer yes or no.

Task card 21 Linear Regression & Correlation

For a data set, r = -0.8, the standard deviation of x is $s_x = 4$ and the standard deviation of y is $s_y = 20$. Find the slope b of the least-squares line.

Task card 22 Linear Regression & Correlation

For a data set, r = -0.5, $s_x = 5$, $s_y = 12$, the mean of x is 29 and the mean of y is 51. Find the y-intercept a of the least-squares line $\hat{y} = a + bx$.

Task card 23 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. One data point has x = 6 and y = 31.2. Find its residual.

Task card 24 Linear Regression & Correlation

The least-squares line $\hat{y} = 55 + 2.5x$ predicts y = test score from x = hours studied, using data with x from 1 to 10. Is it reasonable to use the line to predict y when x = 10? Answer yes or no.

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 · Hard

The answers online

1. 0.5	**2.** 60.6	**3.** -0.9
4. 5	**5.** yes	**6.** 4.5
7. 69.2	**8.** 0.4	**9.** -1.1
10. no	**11.** 6.25	**12.** 87.75
13. -0.8	**14.** -5.1	**15.** no
16. -9.375	**17.** 75	**18.** -0.3
19. 4.5	**20.** no	**21.** -4
22. 85.8	**23.** 2.4	**24.** yes