

Modeling Data Using Linear Regression

Use the Desmos graphing calculator to determine the linear regression equation and the correlation coefficient for the given set of data. Then, use the equation to make a prediction.

Problem 1: The table shows the attendance for the varsity football games at Marco's high school.

Steps:

- A. Enter the data in a table in Desmos.
- B. Go the wrench and change the settings to this.



Game	Attendance
1	2000
2	2132
3	2198
4	2301
5	2285
6	2401

- C. Enter the equation $y_1 \sim mx_1 + b$ in Desmos.

- What is the linear regression equation for the game attendance? Round your slope (m) and y-intercept (b) to a whole number.
- What is the correlation coefficient (r)? Round to two decimal places.
- Is this line a good representation of the data?
- Use your equation to predict the attendance for game 9.
- Use your equation to predict what game would have an attendance of about 3000. Round to a whole number.

Problem 2: The table shows monthly record sales for a recording artist over 6 months.

(Follow the steps listed in Problem 1 and answer each question. You will need to reset your x- and y-values for this too.)

 ▶ X-Axis
-2 ≤ x ≤ 10 Step: 1

 ▶ Y-Axis
22500 ≤ y ≤ 67500 Step: 10000

Monthly	Record Sales (CDs)
January	60,000
February	54,000
March	58,000
April	46,000
May	43,000
June	30,000

- What is the linear regression equation for the monthly record sales? Round your slope (m) and y-intercept (b) to a whole number.
- What is the correlation coefficient (r)? Round to two decimal places.
- Is this line a good representation of the data?
- Use your equation to predict the record sales for December.
- Use your equation to predict what month will have record sales of about 26,000. Round to a whole number.