12.4E: The Regression Equation (Exercise)

Use the following information to answer the next five exercises. A random sample of ten professional athletes produced the following data where x is the number of endorsements the player has and y is the amount of money made (in millions of dollars).

x	y	x	y
0	2	5	12
3	8	4	9
2	7	3	9
1	3	0	3
5	13	4	10

Exercise 12.4.2

Draw a scatter plot of the data.

Exercise 12.4.3

Use regression to find the equation for the line of best fit.

Answer

$\hat{y} = 2.23 + 1.99x$

Exercise 12.4.4

Draw the line of best fit on the scatter plot.

Exercise 12.4.5

What is the slope of the line of best fit? What does it represent?

Answer

The slope is 1.99 ($b = 1.99$). It means that for every endorsement deal a professional player gets, he gets an average of another $1.99 million in pay each year.

Exercise 12.4.6

What is the y-intercept of the line of best fit? What does it represent?

Exercise 12.4.7

What does an r value of zero mean?

Answer

It means that there is no correlation between the data sets.

Exercise 12.4.8

When $n = 2$ and $r = 1$, are the data significant? Explain.

Exercise 12.4.9

When $n = 100$ and $r = -0.89$, is there a significant correlation? Explain.