Answer on Question #45836 – Math – Statistics and Probability

Given the following set of data for a trivariate distribution

Y   6   10 9 14   7   5

X1 1   3   2 -2   3   6

X2 3 -1 4   7   2 -4

(i) Calculate the Multiple regression of Y on X1 and X2

(ii) Predict Y when X1=-1 and X2=4

Solution

(i) To obtain the coefficients of regression equation $y = a + b_1 x_1 + b_2 x_2$

we use the Method of Least Squares
(https://www.easycalculation.com/statistics/multiple-regression.php)

$$y(x_1, x_2) = 12.4247 - 1.48745 x_1 - 0.382845 x_2$$

(ii) $y(-1, 4) = 12.4247 - 1.48745 * (-1) - 0.382845 * 4 = 12.38077$