M.Sc. in ‚Transportation Systems'

Applied Statistics in Transport

Exercises: Correlation, Regression

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1. The university in A-city has collected the following data on the intelligence quotient (IQ, X_i) and the weekly hours of watching TV (Y_i) for a sample of 10 persons. Please analyse the relationship between those two variables. Give reasons for the measure you have chosen and interpret your results.

IQ, X_i	Hours of TV per Week, Y_i
106	7
86	0
100	27
101	50
99	28
103	29
97	20
113	12
112	6
110	17

2. The originating traffic of a region depends on several variables. Please check whether the originating traffic can be explained with the help of simple linear regression as a function of the number of registered passenger cars.

   X number of registered passenger cars [1,000 cars]

   Y originating traffic [1,000 veh./16h]

   The following table shows the observations for 10 regions:

i	x_i	y_i
1	0.3	1.1
2	0.4	2.4
3	1.1	3.5
4	0.8	4.1
5	0.7	2.3
6	1.6	3.6
7	1.1	4.6
8	1.3	3.5
9	1.7	3.8
10	1.4	3
Total	10.4	31.9

   Determine the correlation coefficient; compute the coefficients of the regression line and the coefficient of determination.