Lab Nr. 8, Probability and Statistics

Correlation and Regression

The frequency distributions of two characteristics X and Y are:

$$X = \begin{pmatrix} 20 & 21 & 22 & 23 & 24 & 25 & 26 & 27 \\ 2 & 1 & 3 & 6 & 5 & 9 & 2 & 2 \end{pmatrix},$$

$$Y = \begin{pmatrix} 75 & 76 & 77 & 78 & 79 & 80 & 81 & 82 \\ 3 & 2 & 2 & 5 & 8 & 8 & 1 & 1 \end{pmatrix}.$$

Find
a) the means $\overline{X}$, $\overline{Y}$;
b) the variances σ_X^2, σ_Y^2;
c) the covariance $\text{cov}(X, Y)$;
d) the correlation coefficient ρ_{XY}.
e) plot on the same graph the scattergram and the line of regression of Y on X.