1. A Company has just brought out an annual report in which the capital investment and profits were given for the past few years.

Capital Investment (crores) 10 16 18 24 36 48 57

Profits (lakhs) 12 14 13 18 26 38 62

1. Find the coefficient of correlation.
2. Test H0: β1 = 1 using α = 0.01. Let Se() = 0.145.
3. Test H0: β0 = 0.5 using α = 0.05. Let Se() = 4.95.
4. A study was conducted to find whether there is any relationship between the weight and blood pressure of an individual. The following set of data was arrived at from a clinical study.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| weight | 78 | 86 | 72 | 82 | 80 | 86 | 84 | 89 | 68 | 71 |
| Blood pressure | 140 | 160 | 134 | 144 | 180 | 176 | 174 | 178 | 128 | 132 |

a) Find the equation of estimated linear regression line of Blood pressure on weight.

b) Find the residual of the third observation.

c) Find the sum of square error; sum of square regression.

d) Find the best predicted value of blood pressure of a person who weigh 90 kilograms.

3) Years 1965 1970 1975 1980 1985 1990

Raw cotton import 42 60 112 98 118 132

Cotton manufacture exports 68 79 88 86 106 114.

Based on sample, test for significance of regression using α = 0.05.

1. Which of the following are examples of positive correlation and negative correlation?
2. Heights and weights;
3. Volume and pressure of perfect gas;
4. Current and resistance [keeping the voltage constant]
5. Price and demand of goods.
6. Household income and expenditure;
7. ) Price and supply of commodities;
8. Amount of rainfall and yield of crops.
9. Let

Find the regression line and correlation coefficient.