The following table gives information on ages and cholesterol levels for a random sample of 10 men.

Age	58	69	43	39	63	52	47	31	74	36
Cholesterol level	189	235	193	177	154	191	213	165	198	181

a. Taking age as an independent variable and cholesterol level as a dependent variable, compute SS_{xx}, SS_{yy}, and SS_{xy}.
b. Find the regression of cholesterol level on age.
c. Briefly explain the meaning of the values of a and b calculated in part b.
d. Calculate r and r^2 and explain what they mean.
e. Plot the scatter diagram and the regression line.
f. Predict the cholesterol level of a 60-year-old man.
g. Compute the standard deviation of errors.
h. Construct a 95% confidence interval for B.
i. Test at the 5% significance level if B is positive.
j. Using $\alpha = .025$, can you conclude that the linear correlation coefficient is positive?

Answer:

a. $SS_{xx} = 1895.6000$; $SS_{yy} = 4798.4000$; $SS_{xy} = 1231.8000$
b. $\hat{y} = 156.3302 + .6498x$
d. $r = .41$; $r^2 = .17$
f. 195.3182
g. $s_e = 22.3550$
h. −.53 to 1.83
i. H_0: $B = 0$; H_1: $B > 0$; critical value: $t = 1.860$; test statistic: $t = 1.265$; do not reject H_0
j. H_0: $\rho = 0$; H_1: $\rho > 0$; critical value: $t = 2.306$; test statistic: $t = 1.271$; do not reject H_0