SIKSHAPATH
WE ARE LIMITLESS

Q//The heights of persons with No. of persons is given , Heights (in Cm): 58, 59, 60, 61, 62, 63, 64, 65 and No. of persons : 10, 18, 30, 42,35, 28, 16, 8 .

Find Karl Pearson's coefficient of correlation.

X	Y	$X- M_x$	$(X- M_x)^2$	$(Y- M_y)$	$(Y- M_y)^2$	$(X- M_x)(Y- M_y)$
58	10	-3.5	12.25	-13.375	178.891	46.812
59	18	-2.5	6.25	-5.375	28.891	13.438
60	30	-1.5	2.25	6.625	43.891	-9.938
61	42	-0.5	0.25	18.625	346.891	-9.312
62	35	0.5	0.25	11.625	135.141	5.812
63	28	1.5	2.25	4.625	21.391	6.938
64	16	2.5	6.25	-7.375	54.391	-18.438
65	8	3.5	12.25	-15.375	236.391	-53.812
Sum= 492	Sum=187		Sum=42		Sum=1045.875	Sum=-18.5

Where :

X: X Values
Y: Y Values
M_x: Mean of X Values
M_y: Mean of Y Values
$X - M_x$ & $Y - M_y$: Deviation scores

$(X - M_x)^2$ & $(Y - M_y)^2$: Deviation Squared
$(X - M_x)(Y - M_y)$: Product of Deviation Scores

X Values

$\sum X_i = 492$

Mean $= \sum X_i / X_i = 492/7 = 61.5$

$\sum(X - Mx)2 = SSx = 42$

Y Values

$\sum Y_i = 187$

Mean = 23.375

$\sum(Y - My)2 = SSy = 1045.875$

$$r = \Sigma xy / \sqrt{\Sigma x^2} \times \sqrt{\Sigma y^2}$$

$r = -18.5 / \sqrt{((42)(1045.875))} = -0.0883$

Thus, the value of correlation coefficient is - 0.0883.