$$b_1 = \frac{n\sum xy - [(\sum x)(\sum y)]}{n\sum x^2 - (\sum x)^2}$$

$n = 5 \rightarrow$ no of observations

$$b_1 = \frac{5 \cdot 157 - [(17)(36)]}{5 \cdot 75 - (17)^2}$$

$$b_1 = \frac{785 - 612}{375 - 289}$$

$$b_1 = \frac{173}{86}$$

$$b_1 = 2.012$$

$$b_0 = \bar{y} - b_1 \bar{x}$$

$$= 7.2 - 2.012(3.4)$$

$$= 7.2 - 6.840$$

$$= 0.36$$

$$y = b_0 + b_1 x$$

$$= 0.36 + 2.012(10)$$

$$= 0.36 + 20.12$$

$$= 20.48$$

$\sum x = 17$

$\sum y = 36$

$\sum xy = 157$

$\sum y^2 = 332$

$\sum x^2 = 75$

$\bar{y} = 36/5 = 7.2$

$\bar{x} = 17/5 = 3.4$

$b_1 = 2.012$

$b_0 = 0.36$

$y = 20.48$

x	y	xy	x^2	y^2
1	3	3	1	9
3	7	21	9	49
5	11	55	25	121
2	3	6	4	9
6	12	72	36	144
17	36	157	75	332
↑ Sum of x values $\sum x$	$\sum y$	$\sum xy$	$\sum x^2$	$\sum y^2$

(3) also means there is a direct relationship btw x and y hence as x increases, y increases since r is positive & also positive slope

(2) ~~or stop~~ our slope is very high

(1) This r value is very high which means the relationship is very strong (the x & y) very linear

Correlation Coefficient

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

$$r = \frac{5(157) - 17(36)}{\sqrt{[5 \cdot 75 - (17)^2][5 \cdot 332 - (36)^2]}}$$

$$r = \frac{785 - 612}{\sqrt{[375 - 289][1660 - 1296]}}$$

$$r = \frac{173}{\sqrt{86 \times 364}}$$

$$r = \frac{173}{\sqrt{31304}}$$

$$r = \frac{173}{176.93}$$

$$r = 0.977$$

$$\approx 0.98$$