

Horas Extra (x)

2	4	5	6	6	7	9	9	10	12	x=10
12	13	9	7	12	8	6	9	7	5	y=10

Rehabados (y)

Función de correlación "x"
 $SCX = \sum X^2 - \frac{(\sum X)^2}{n} = \text{Formula}$

x y xy x² y²

$$SCX = 572 - \frac{70^2}{10}$$

10 10

2 12 24 4 144

$$SCX = 572 - 7$$

4 13 52 16 169

$$SCX = 565$$

5 9 45 25 81

6 7 42 36 49

6 12 72 36 144

Factor de correlación "y"
 $SCY = \sum Y^2 - \frac{(\sum Y)^2}{n} = \text{Formula}$

7 8 56 49 64

9 6 54 81 36

9 9 81 81 81

10 7 70 100 49

12 5 60 144 25

Σ70 Σ88 Σ556 Σ572 Σ842

$$SCY = 842 - \frac{88^2}{n=10}$$

$$SCY = 842 - 8.8$$

$$SCY = 833.2$$

$$r = \frac{SCXY}{\sqrt{SCX \cdot SCY}}$$

$$r = -0.087$$

$$SCXY = \sum XY - \frac{(\sum X)(\sum Y)}{n}$$

$$\sqrt{SCX \cdot SCY}$$

$$r = -0.87$$

$$SCXY = 556 - \frac{70 \cdot 88}{10}$$

$$r = -51$$

$$\sqrt{565 \cdot 833.2}$$

$$SCXY = 556 - \frac{6,160}{10}$$

$$r = -51 - 60$$

$$686.11$$

$$SCXY = 556 - 616$$

$$SCXY = -60$$

X	Y	XY	X ²	Y ²
2	14	28	4	196
3	20	60	9	400
5	32	160	25	1,024
7	42	294	49	1,764
8	44	352	64	1,936

$$S_{CX} = \sum X^2 - \frac{(\sum X)^2}{n} = 151 - \frac{(25)^2}{5} = 26$$

$$S_{CY} = \sum Y^2 - \frac{(\sum Y)^2}{n} = 5,300 - \frac{(152)^2}{5} = 700$$

$$S_{CXY} = \sum XY - \frac{(\sum X)(\sum Y)}{n} = 897 - \frac{(25)(152)}{5} = 137$$

$$r = \frac{137}{\sqrt{(26)(700)}} = r = 0.99$$

Fuerte +

$$r = \frac{S_{CXY}}{\sqrt{(S_{CX})(S_{CY})}}$$

Cuanto vale Y cuando X tostada vale 1 año

Cuanto vale Y cuando X tostada vale 50 kilos

$$1 - b_1 = \frac{S_{CXY}}{S_{CX}} = 5.15$$

$$30.4 - 5.15 \times 4.65$$

$$4.65 + 5.15 \times 1 = 9.8$$

MRX

$$2 - \bar{X} = 5 \quad \bar{Y} = 30.4 \quad b_0 = 4.65$$

$$\hat{Y} - b_0 = \frac{50 \cdot 4.65 - 43.35}{5.15} = 9.8$$

$$3 - b_0 = \bar{Y} - b_1 \cdot \bar{X} =$$

$$4 - MR_{CY} = 60 + 61 \cdot X =$$

$$5 - MR_{CY} = \frac{\hat{Y} - b_0}{b_1} =$$

X	Y	XY	X ²	Y ²
6	6.5	39	36	42.25
4	4.5	18	16	20.25
8	7	56	64	49
5	8	25	25	25
3.8	4	19	17.25	16
26.8	27	152	153.25	152.5

$$SCX = \frac{702.25}{5} - \frac{140.45}{153.25} - 12.8$$

$$b_1 = \frac{8.9}{12.8} = 0.6953$$

$$SCY = \frac{729}{5} - \frac{145.8}{152.5}$$

$$\bar{X} = 26.8/5 = \bar{X} = 5.3$$

$$\bar{Y} = 27/5 = \bar{Y} = 5.4$$

$$b_0 = 5.4 - 0.6953 * 5.3$$

$$SCXY = 152 - \frac{26 * 27}{5}$$

$$b_0 = 5.4 - 3.68509$$

$$b_0 = 1.71491$$

$$152 - \frac{715.5}{5}$$

$$152 - 143.1$$

$$SCXY = 8.9$$

$$r = \frac{SCXY}{\sqrt{(SCX)(SCY)}} = \frac{8.9}{\sqrt{12.8 * 6.7}} = \frac{8.9}{9.26} = r = 0.96$$

5 niños de 2, 3, 5, 7 y 8 años pesan 14, 20, 32, 42 y 44 Kg respectivamente

X	Y	XY	X ²	Y ²
2	14	28	4	196
3	20	60	9	400
5	32	160	25	1,024
7	42	294	49	1,764
8	44	352	64	1,936
25	152	894	131	5,320

$$SCX = \frac{\sum X^2 - \frac{(\sum X)^2}{n}}{n} = \frac{131 - \frac{(25)^2}{5}}{5} \quad SCX = 26$$

$$SCY = \frac{\sum Y^2 - \frac{(\sum Y)^2}{n}}{n} = \frac{5,320 - \frac{(152)^2}{5}}{5} \quad SCY = 700$$

$$SCXY = \frac{\sum XY - \frac{(\sum X)(\sum Y)}{n}}{n} = \frac{894 - \frac{(25)(152)}{5}}{5} \quad SCXY = 134$$

Factor de correlación

$$r = \frac{SCXY}{\sqrt{SCX \cdot SCY}}$$

$$r = \frac{134}{\sqrt{(26)(700)}} \quad r = 0.99 \quad \text{Fuerte +}$$

Regresión lineal

$$① b_1 = \frac{SCXY}{SCX} \quad b_1 = \frac{134}{26} = 5.15 = b_1$$

$$② \bar{x} = \frac{\sum X}{n} = \frac{25}{5} = 5 = \bar{x} \quad \bar{y} = \frac{\sum Y}{n} = \frac{152}{5} = 30.4 = \bar{y}$$

$$③ b_0 = \bar{y} - b_1 \cdot \bar{x} \quad b_0 = 30.4 - 5.15 \cdot 5 = 30.4 - 25.75 = 4.65$$

$$④ \text{MRY} \hat{y} = b_0 + b_1 \cdot \hat{x} \quad \hat{y} = 4.65 + 5.15 \cdot 1 = 4.65 + 5.15 = 9.8 = \hat{y}$$

$$⑤ \text{MRV} \hat{x} = \frac{\hat{y} - b_0}{b_1} \quad \hat{x} = \frac{9.8 - 4.65}{5.15} = \hat{x} = \frac{5.15}{5.15}$$

$$\hat{x} = 1.00 \text{ años}$$