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

| Años | Kg | (x*y) | (x*x) | (y*y) |
|---|---|---|---|---|
| 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 | 151 | 5,320 |

Sumatorias.

Sumas de cuadrados!

$$SCX = \Sigma x^2 - \frac{(\Sigma x)^2}{n} = 151 - \frac{(25)^2}{5} \quad \boxed{SCX = 26}$$

$$SCY = \Sigma y^2 - \frac{(\Sigma y)^2}{n} = 5{,}320 - \frac{(152)^2}{5} \quad \boxed{SCY = 700}$$

$$SCXY = \Sigma xy - \frac{(\Sigma x)(\Sigma y)}{n} = 894 - \frac{(25)(152)}{5}$$

Factor de Correlación!

$$\boxed{SCXY = 134}$$

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

Regresión Lineal

1= $b1 = \frac{SCXY}{SCX}$

$b1 = \frac{134}{26} = \boxed{5.15} = b1$

2= $\bar{X} = \frac{\Sigma X}{n} = \frac{25}{5} = \boxed{5 = \bar{X}}$

$\bar{Y} = \frac{\Sigma Y}{n} = \frac{152}{5} = \boxed{30.4 = \bar{Y}}$

3= $b0 = \bar{Y} - b1 * \bar{X}$

$b0 = 30.4 - 5.15 * 5$

$30.4 - 25.75 = \boxed{4.65\ b0}$

4= MRL $\hat{Y} = b0 + b1 * \hat{X}$

(conocer Kgs) $\hat{Y} = 4.65 + 5.15 * 1$

$4.65 + 5.15 = \boxed{9.8 = \hat{Y}}$ ← Kgs

5= MRL $\hat{X} = \frac{\hat{Y} - b0}{b1}$ $\hat{X} = \frac{50 - 4.65}{5.15}$

(conocer años)

$\hat{X} = \frac{45.35}{5.15}$

$\boxed{\hat{X} = 8.80}$ ← Años

Las notas obtenidas por 5 alumnos en matematicas son:

| Mate X | QM 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 | 5 | 25 | 25 | 25 |
| 3.5 | 4 | 14 | 12.25 | 16 |
| 26.5 | 27 | 152 | 153.25 | 152.5 |

Suma de cuadrados:

De "X" $= Scx = \Sigma x^2 - \frac{(\Sigma X^2)^2}{n} - \frac{(26.5)^2}{5} = 140.45$

$153.25 - 140.45 = \boxed{12.8}$ X

De "Y" $= \Sigma Y^2 - \frac{(\Sigma Y)^2}{n} = 158.25 - \frac{(27)^2}{5}$

$158.25 - \frac{729}{5} = 158.2 - 145.8$

Y $\boxed{= 6.7}$

De "XY" $= \Sigma XY - \frac{(\Sigma X)(\Sigma Y)}{n}$

$152 - \frac{(26.5)(27)}{5} = 152 - 143.1$

XY $= \boxed{8.9}$

Factor de correlación

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

$r = \frac{8.9}{\sqrt{85.76}} = r = \frac{8.9}{9.26}$

$r = 0.96. =$ Fuerte

Regresión Lineal

1= $b1 = \frac{SCXY}{SCX} = \frac{8.9}{12.8} = b1 = 0.69$

2: $\bar{X} = 5.3 \quad \bar{Y} = 5.4$

3: $b0 = \bar{Y} - b1 * \bar{X} = 5.4 - (0.69)(5.3)$

$5.4 - 3.65 = 1.75$

4= MRL $\hat{Y} = b0 + b1 * \hat{X} = 1.75 + (0.69)($

$1.75 +$

5: MRL $\hat{X} = \frac{\hat{Y} - b0}{b1} = \frac{'' - 1.75}{0.69}$

2: Un centro comercial sabe en función de la distancia, en KM, a la que se sitúe de un núcleo de población, acuden a los clientes, en cientos, que figuran en la tabla

| (clientes) X | (distancia) Y | XY | $X^2$ | $Y^2$ |
|---|---|---|---|---|
| 8 | 15 | 120 | 64 | 225 |
| 7 | 19 | 133 | 49 | 361 |
| 6 | 25 | 150 | 36 | 625 |
| 4 | 23 | 92 | 16 | 529 |
| 2 | 34 | 68 | 4 | 1,156 |
| 1 | 40 | 40 | 1 | 1,600. |
| 28 | 156 | 603 | 170 | 4,496 |

Suma de cuadrados...

① De "x" $= SCx = \frac{\Sigma(x)^2}{n} = \frac{28^2}{6} = \frac{784}{6} = 130.66$

$170 - 130.66 = \boxed{39.34 = SCx}$

② De "y" $= \Sigma y^2 - \frac{(\Sigma y)^2}{n} = \frac{156^2}{6} = \frac{24,336}{6} = 4,056$

$4,496 - 4,056 = \boxed{440 = SCy}$

③ De "xy" $= \Sigma xy - \frac{(\Sigma x)(\Sigma y)}{n} = \frac{(28)(156)}{6}$

$603 - 728 = \boxed{-125 = SCxy}$

$$r = \frac{SCXY}{\sqrt{(SCX)(SCY)}} = \frac{-125}{\sqrt{(39.34)(440)}} = \frac{-125}{\sqrt{17,309.6}}$$

$$\frac{-125}{131.56} = -0.95 = \text{Factor de correlación}$$

Regresión Lineal

① $b1 = \frac{SCXY}{SCX} = \frac{-125}{39.34} = \boxed{-3.17 = B1}$

② $\boxed{\bar{X} = 4.66}$, $\boxed{\bar{Y} = 26}$

③ $b0 = \bar{Y} - b1 * \bar{X} = b0 = 26 - (-3.17) * 4.66$

$26 - (-14.77) = \boxed{40.77 = B0}$

④ $MRL\ \hat{Y} = B0 + B1 * \hat{X} = 40.77 + (-3.17)(5)$

$40.77 + (-15.85) = \boxed{24.92\ KM}$

⑤ $MRL\ \hat{X} = \frac{\hat{Y} - b0}{b1} = \frac{2 - 40.77}{(-3.17)} = \frac{(-38.77)}{(-3.17)}$

$\boxed{= 12.23 \text{ clientes por esperar}}$

S: Las estaturas y pesos de 10 jugadores de baloncesto de un equipo son:

| Estatura $X$ | Peso $Y$ | $XY$ | $X^2$ | $Y^2$ |
|---|---|---|---|---|
| 186 | 85 | 15,810 | 34,596 | 7,225 |
| 189 | 85 | 16,065 | 35,721 | 7,225 |
| 190 | 86 | 16,340 | 36,100 | 7,396 |
| 192 | 90 | 17,280 | 36,864 | 8,100 |
| 193 | 87 | 16,791 | 37,249 | 7,569 |
| 193 | 91 | 17,563 | 37,249 | 8,281 |
| 198 | 93 | 18,414 | 39,204 | 8,649 |
| 201 | 103 | 20,703 | 40,401 | 10,609 |
| 203 | 100 | 20,300 | 41,209 | 10,000 |
| 205 | 101 | 20,705 | 42,025 | 10,201 |
| 1,950 | 921 | 179,971 | 380,618 | 85,255 |

(2) Suma de cuadrados...

① De "x" $= SCX = \Sigma x^2 - \frac{(\Sigma x)^2}{n} = \frac{3,802,500}{10}$

$380,618 - 380,250 = \boxed{368 \; SCX}$

② De "y" $= \Sigma y^2 - \frac{(\Sigma y)^2}{n} = \frac{848,241}{10}$

$85,255 - 84,824.1 = \boxed{430.9 \; SCY}$

③ De "xy" $= \Sigma xy - \frac{(\Sigma x)(\Sigma y)}{n} = \frac{(1,950)(921)}{10} =$

$179,971 - 179,595 = \boxed{376 \; SCXY}$

tilibra

$$r = \frac{SCXY}{\sqrt{(SCX)(SCY)}} = \frac{376}{\sqrt{(368)(430.9)}} = \frac{376}{\sqrt{158,571.2}}$$

$\frac{376}{398.20} = \underline{0.94}$ = Factor de correlación FUERTE

Regresión Lineal

① $B_1 = \frac{SCXY}{SCX} = \frac{376}{368} = \boxed{1.02\ B_1}$

② $\bar{x} = 195$ $\bar{y} = 92.1$

③ $B_0 = \bar{y} - b_1 * \bar{x} = 92.1 - (1.02)(195)$
$92.1 - 198.9 = \boxed{-106.8\ B_0}$

④ $MRL\ \hat{y} = B_0 + B_1 * \hat{x} = (-106.8) + (1.02)(208)$
$(-106.8) + 212.16 = \boxed{105.36\ \text{Peso Kg}}$

⑤ $MRL\ \hat{x} = \frac{\hat{y} - B_0}{B_1}$ = No pide el problema jeje...

5:- A partir de los siguientes datos referentes a hrs. trabajadas. Determina la recta de regresión de "y" sobre "x".

| Horas X | Producción Y | XY | $X^2$ | $Y^2$ |
|---|---|---|---|---|
| 80 | 300 | 24,000 | 6,400 | 90,000 |
| 79 | 302 | 23,858 | 6,241 | 91,204 |
| 83 | 315 | 26,145 | 6,889 | 99,225 |
| 84 | 330 | 27,720 | 7,056 | 108,900 |
| 78 | 300 | 23,400 | 6,084 | 90,000 |
| 60 | 250 | 15,000 | 3,600 | 62,500 |
| 82 | 300 | 24,600 | 6,724 | 90,000 |
| 85 | 340 | 28,900 | 7,225 | 115,600 |
| 79 | 315 | 24,885 | 6,241 | 99,225 |
| 84 | 330 | 27,720 | 7,056 | 108,900 |
| 80 | 310 | 24,800 | 6,400 | 96,100 |
| 62 | 240 | 14,880 | 3,844 | 57,600 |
| 936 | 3,632 | 285,908 | 73,760 | 1,109,254 |

① De "X" = SCX = $\Sigma x^2 - \frac{(\Sigma x)^2}{n} = \frac{876,096}{12} = 73,008$

$73,760 - 73,008 = \boxed{752 \text{ scx}}$

② De "y" = SCX = $\Sigma y^2 - \frac{(\Sigma y)^2}{n} = \frac{13,191,424}{12}$

$1,109,254 - 1,099,285.33$

$= \boxed{9,968.67 \text{ scy}}$

③ De "xy" $= \Sigma xy - \frac{(\Sigma x)(\Sigma y)}{n} - \frac{(936)(3{,}632)}{12}$

$285{,}908 - 283{,}296 = \boxed{2{,}612 \ scxy}$

$r = \frac{scxy}{\sqrt{(scx)(scy)}}$

$r = \frac{2{,}612}{\sqrt{(752)(9{,}968.67)}} = \frac{2{,}612}{\sqrt{7{,}496{,}439.84}}$

$\frac{2{,}612}{2{,}737.96} = \boxed{0.95}$ Factor de Correlación Fuerte.

Regresión Lineal

① $B1 = \frac{scxy}{scx} = \frac{2{,}612}{752} = \boxed{3.47 \ B1}$

② $\boxed{\bar{x} = 78}$, $\boxed{\bar{y} = 302.66}$

③ $B0 = \bar{y} - b1 * \bar{x} = 302.66 - (3.47)(78)$

$302.66 - 270.66 = \boxed{32 \ B0}$