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Problema 1:

Persona	Consumo de pt.	Massa Muscular
1	80	60
2	100	65
3	90	62
4	85	61
5	110	67
6	95	63

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

$$\bar{x} = \frac{80 + 100 + 90 + 85 + 110 + 95}{6} = 93.33$$

$$\bar{y} = \frac{60 + 65 + 62 + 61 + 67 + 63}{6} = 63$$

x	y	$x_i - \bar{x}$	$y_i - \bar{y}$	$(x_i - \bar{x})(y_i - \bar{y})$	$(x_i - \bar{x})^2$	$(y_i - \bar{y})^2$
80	60	-13.33	-3	39.99	177.68	9
100	65	6.67	2	13.34	44.48	4
90	62	3.33	-1	-3.33	11.08	1
85	61	-8.33	-2	16.66	69.38	4
110	67	16.67	4	66.68	277.88	16
95	63	1.67	0	0	2.78	0
		$\sum = -140$		$\sum = 583.28$		$\sum = 34$

$$\frac{140}{140.82}$$

Casi Perfecto

$$\left( \frac{0.994176933}{99.41769635} \right)$$



# Problema 2

	Consumo	Pérdida	$\frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2 \sum(y_i - \bar{y})^2}}$
1	2.0	0.5	
2	2.5	0.7	
3	1.8	0.4	
4	3.0	0.9	
5	2.2	0.6	
6	2.7	0.8	
	$\bar{x} = \frac{2+2.5+1.8+3.0+2.2+2.5}{6} = 2.3$	$\bar{y} = \frac{0.5+0.7+0.4+0.9+0.6+0.8}{6} = 0.65$	

$\bar{x} = 2.3 \quad \bar{y} = 0.65$

X	Y	$x_i - \bar{x}$	$y_i - \bar{y}$	$(x_i - \bar{x})^2$	$(y_i - \bar{y})^2$	$(x_i - \bar{x})(y_i - \bar{y})$
2.0	0.5	-0.3	-0.15	0.09	0.0225	0.045
2.5	0.7	0.2	0.05	0.04	0.0025	0.01
1.8	0.4	-0.5	-0.25	0.25	0.0625	0.125
3.0	0.9	0.7	0.25	0.49	0.0625	0.175
2.2	0.6	-0.1	-0.05	0.01	0.0025	0.005
2.7	0.8	0.4	0.15	0.16	0.0225	0.06
		$\sum 0.4$	$\sum 0$	$\sum 1.04$	$\sum 0.175$	$\sum 0.42$

$\frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2 \sum(y_i - \bar{y})^2}} = \frac{0.42}{\sqrt{1.04 \times 0.175}} = 0.4038$

$\frac{0.42}{\sqrt{0.182}} = 0.42661458$

$R = 0.42 = \frac{0.984495185 \times 100}{0.42661458} = 98.44951853$

## Continuación Problema 5

$\hat{y} = B_0 + B_1 x \quad B_1 = \frac{0.42}{1.04} = 0.4038$

$B_0 = \bar{y} - B_1 \bar{x} \quad B_0 = 0.65 - 0.4038 \times 2.3 = 0.2462$

$\hat{y} = 0.2462 + 0.4038x$



### Problema 3

	1	2	3	Total
M	12	18	10	40
F	15	12	13	30
	27	30	23	76

$$E_i = \left( \frac{f_{i.} \times n_c}{n} \right) + \text{general}$$

$$(O_i - E_i)$$

$$M = \frac{40 \times 27}{76} = \frac{1080}{76} = 15.42$$

$$12 - 15.42 = -4.2$$

$$M_2 = \frac{40 \times 30}{76} = \frac{1200}{76} = 17.14$$

$$18 - 17.14 = 0.80$$

$$M_3 = \frac{40 \times 23}{76} = \frac{1000}{76} = 14.28$$

$$10 - 14 = -4$$

$$F_1 = \frac{30 \times 27}{76} = \frac{810}{76} = 11.57$$

$$15 - 11.57 = 3.43$$

$$F_2 = \frac{30 \times 30}{76} = \frac{900}{76} = 12.86$$

$$12 - 12.85 = -0.85$$

$$F_3 = \frac{30 \times 23}{76} = \frac{690}{76} = 9.85$$

$$13 - 9.35 = 3.15$$

$$\sum (O_i - E_i)^2 = 3.2474$$

$$(O_i - E_i)^2$$

$$M_1 = \frac{0.176}{15.42} = 0.011$$

$$F_1 = \frac{11.76}{11.57} = 1.016$$

$$M_2 = \frac{0.73}{17.14} = 0.043$$

$$F_2 = \frac{0.72}{12.88} = 0.05$$

$$M_3 = \frac{16}{14.28} = 1.120$$

$$F_3 = \frac{9.92}{9.85} = 1.007$$



# Problema 4

	Disa	Alta	Total	
A = Sedentario	20	15	5	40
B = Moderado	10	25	15	50
C = Activo	15	20	25	60
	46	60	45	150

$$A_1 = \frac{40 + 45}{150} = \frac{85}{150} = 0.56$$

$$(0.1 - (-0.1)) = 0.2 \quad (0.1 - 0.1)^2 = 0$$

$$20 \cdot 0.56 = 11.2 \quad 377.9$$

$$A_2 = \frac{40 + 60}{150} = \frac{100}{150} = 0.66$$

$$15 \cdot 0.66 = 9.9 \quad 205.6$$

$$5 \cdot 0.56 = 2.8 \quad 19.7$$

$$A_3 = \frac{40 + 45}{150} = \frac{85}{150} = 0.56$$

$$10 \cdot 0.63 = 6.3 \quad 87.7$$

$$B_1 = \frac{30 + 45}{150} = \frac{75}{150} = 0.5$$

$$25 \cdot 0.66 = 16.5 \quad 542.4$$

$$B_2 = \frac{50 + 60}{150} = \frac{110}{150} = 0.73$$

$$B_3 = \frac{60 + 46}{150} = \frac{106}{150} = 0.71$$

$$15 \cdot 0.7 = 10.5 \quad 204.4$$

$$C_1 = \frac{60 + 45}{150} = \frac{105}{150} = 0.7$$

$$15 \cdot 0.7 = 10.5 \quad 204.4$$

$$C_2 = \frac{60 + 60}{150} = \frac{120}{150} = 0.8$$

$$26 \cdot 0.8 = 20.8 \quad 368.64$$

$$C_3 = \frac{60 + 45}{150} = \frac{105}{150} = 0.7$$

$$25 \cdot 0.7 = 17.5 \quad 590.4$$

$$\Sigma = 2651.1$$



Problema 6.

Continuación Problema 1

$$\hat{y} = \beta_0 + \beta_1 x$$

$$\beta_1 = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sum (x_i - \bar{x})^2}$$

$$\beta_0 = \bar{y} - \beta_1 \bar{x}$$

$$\beta_1 = 0.24$$

$$\beta_0 = 40.61$$

$$63 - 0.24$$

$$(43.33)$$

$$63 - 22.39$$

$$\beta_0 = 40.61$$

$$\beta_0 = 63 - 0.24$$

$$\beta_0 = 62.76$$

$$40.61 + 0.24(80) = 59.81$$

$$40.61 + 0.24(100) = 64.61$$

$$y = 40.61 + 0.24x$$