



UDES

Mi Universidad

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Persona	Consumo de proteínas (g)	Masa muscular (Kg)
1	80	60
2	100	65
3	90	62
4	85	61
5	110	67
6	95	63

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

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

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

x_i	y_i	$x_i - \bar{x}$	$y_i - \bar{y}$	$(x_i - \bar{x})(y_i - \bar{y})$	$(x_i - \bar{x})^2$	$(y_i - \bar{y})^2$
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
				$\Sigma 140$	$\Sigma 583.28$	$\Sigma 34$

$$y = B_0 + B_1 x$$

$$B_1 = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sum (x_i - \bar{x})^2}$$

$$B_0 = 63 - 0.24(93.33)$$

$$B_0 = 63 - 22.39$$

$$B_0 = 40.61$$

$$B_0 = \bar{y} - B_1 \bar{x}$$

$$B_1 = 0.24$$

$$140 \div 583 = 0.24$$

$$y = 40.61 + 0.24x$$

Comprobar $40.61 + 0.24(80) = 59.81$
 $40.61 + 0.24(100) = 64.61$

Problema 2

Persona	Consumo de agua (L)	Perdida en peso (kg)
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

x_i	y_i	$(x_i - \bar{x})$	$(y_i - \bar{y})$	$(x_i - \bar{x})^2$	$(y_i - \bar{y})^2$	Suma de los $(x_i - \bar{x})(y_i - \bar{y})$
2.0	0.5	-0.367	-0.15	0.1345	0.0225	0.05505
2.5	0.7	0.1323	0.05	0.0175	0.0025	0.006615
1.8	0.4	-0.567	-0.25	0.3214	0.0625	-0.14175
3.0	0.9	0.633	0.25	0.4006	0.0625	0.16075
2.2	0.6	-0.167	-0.05	0.0278	0.0025	-0.00835
2.7	0.8	0.333	0.15	0.1109	0.0225	0.04995
		-0.0017	0	0.8011	0.1775	0.9025

$$\bar{x} - \bar{y} = \frac{\sum x_i}{N} - \frac{\sum y_i}{N}$$

$$r = \frac{0.4025}{\sqrt{(0.3389)(0.1775)}} = \frac{0.4025}{\sqrt{0.18352}}$$

$$r = \frac{0.4025}{0.4283} = 0.9391$$

• Hipotesis $H_0 =$
Es rechazada

• Es positiva
ya que da
 $r = 0.9$

Problema 3.

Género	Vegetales	Proteínas	Carbohidratos	
Masculino	12	18	10	40
Femenino	15	12	13	40
Total	27	30	23	80
				Total

$$fA = \frac{(\text{Total fila}) (\text{total columna})}{\text{Total muestra}}$$

$$fA = \frac{40 (27)}{80} = \frac{1080}{80} = 13.5$$

$$fA = \frac{40 (30)}{80} = \frac{1200}{80} = 15$$

$$fA = \frac{40 (23)}{80} = \frac{920}{80} = 11.5$$

$$(O_1 - E_1) = (12 - 13.3) = (-1.3)^2 = 1.69 / 13.3 = 0.127067$$

$$(18 - 15)^2 = 9 / 15 = 0.6 / 15 = 0.04$$

$$(10 - 11.5)^2 = (-1.5)^2 = 2.25 / 11.5 = 0.19565$$

$$(15 - 13.3)^2 = (1.7)^2 = 2.89 / 13.3 = 0.217293$$

$$(12 - 15)^2 = (-3)^2 = 9 / 15 = 0.6 / 15 = 0.04$$

$$(13 - 11.5)^2 = (1.5)^2 = 2.25 / 11.5 = 0.19565$$

$$\chi^2 = 1.9289$$

Problema 4

Actividad Física	Baja Frecuencia	Mediana Frecuencia	Alta Frecuencia	Total
Sedentario	20	15	5	40
Moderado	15	25	15	50
Activo	5	20	25	50
Total	35	60	45	140

	Total		Total
10	17.14	12.857	39.997
12.5	21.42	16.07	49.99
12.5	21.42	16.07	49.99
Total	35	59.98	44.997
			139.977

$$k = (3.1)(3-1) = 4 \times 2 = 8.2\%$$

$$f_e = \frac{40(35)}{140} = 10$$

$$f = \frac{50(35)}{140} = 12.5$$

$$F_c = \frac{40(60)}{140} = 17.14$$

$$F = \frac{50(60)}{140} = 21.42$$

$$F_c = \frac{40(45)}{140} = 12.857$$

$$F = \frac{50(45)}{140} = 16.07$$

$$x^2 = \frac{(20-10)^2}{10} + \frac{(15.1714)^2}{17.14} + \frac{(5-12.857)^2}{12.857} +$$

$$\frac{(10-12.5)^2}{12.5} + \frac{(25-21.42)^2}{21.42} + \frac{(15-16.07)^2}{16.07} +$$

$$\frac{(5-12.5)^2}{12.5} + \frac{(20-21.42)^2}{21.42} + \frac{(25-16.07)^2}{16.07}$$

$$x^2 = 10 + 0.267 + 4.80 + 0.5 + 0.598 + 0.07$$

$$4.5 + 0.09 + 4.9 = 25.725$$