

Ejercicio de entrenamiento

Repaso examen

	MC (X_i)	f_i	F_i	$X_i \cdot f_i$	$X_i^2 \cdot f_i$
60-62	61	5	5	305	18.605
63-65	64	18	23	1152	73.728
66-68	67	42	65	2814	188.538
69-71	70	27	92	1890	132.300
72-74	73	8	100	584	42.632
		<u>100</u>		<u>6745</u>	<u>455.803</u>

$$\bar{X} = \frac{\sum f_i X_i}{n} = \frac{6745}{100} = 67.45$$

$$M_e = 66 + \frac{50 - 23}{42} \cdot 2 = 67.28$$

$$M_o = 66 + \frac{42 - 18}{(42 - 18) + (42 - 27)} \cdot 2 = 66 + \frac{24}{39} \cdot 2 = 67.23$$

$$\text{Varianza}(\sigma^2) = \frac{455.803}{100} - 4549.5 = 4558.03 - 4549.5 = 8.53$$

$$\text{Desviación típica}(\sigma) = \sqrt{8.53} = 2.92$$

$$CV = \frac{\sigma}{\bar{X}} = \frac{2.92}{67.45} = 0.04$$

Cuartiles

$$Q_1 = \frac{KN}{4} = \frac{1 \cdot 100}{4} = 25$$

$$Q_1 = 66 + \frac{25 - 23}{42} \cdot 2 = 66.095$$

$$Q_3 = \frac{KN}{4} = \frac{3 \cdot 100}{4} = 75$$

$$Q_3 = 69 + \frac{75 - 65}{27} \cdot 2 = 69'74$$

$$\text{Rango intercuartílico} = Q_3 - Q_1 = 3'65$$

Deciles

$$D_7 = \frac{KN}{10} = \frac{7 \cdot 100}{10} = 70$$

$$D_7 = 69 + \frac{70 - 65}{27} \cdot 2 = 69'37$$

Percentiles

$$P_{68} = \frac{KN}{100} = \frac{68 \cdot 100}{100} = 68$$

$$P_{68} = 69 + \frac{68 - 65}{27} \cdot 2 = 69'22$$

Contraste de hipótesis

$$\mu_0 = 7 \text{ (hipótesis nula)}$$

$$\mu_1 \neq 7 \text{ (hipótesis alternativa)}$$

$$\bar{X} = 6'89$$

$$N = 80$$

$$1'1\%$$

$$Z_{\alpha/2} = 2'58$$

$$\sigma^* = 4'84$$

$$\sigma = \sqrt{4'84} = 2'2$$

$$\left(6'89 - 2'58 \cdot \frac{2'2}{\sqrt{80}}, 6'89 + 2'58 \cdot \frac{2'2}{\sqrt{80}} \right) =$$

$$= (6'26, 7'52)$$

Aceptamos la hipótesis de que la media sea de 7 con una significación del 1'1%.