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Nombre del trabajo:

Materia: Estadística Inferencial en nutrición.

PASIÓN POR EDUCAR

Grado: 4° Cuatrimestre

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Ejercicio 1

	Estrato 1	Estrato 2	Estrato 3	Estrato 4
$N_1 = 30$	200	195	240	215
$N_2 = 30$	220	230	195	200
$N_3 = 30$	180	210	208	225
$n = 20$	230	200	215	205
$N = 120$	190	170	230	210

$$n_1 = 20 \left(\frac{30}{120} \right) = 5$$

$$n_3 = 20 \left(\frac{30}{120} \right) = 5$$

$$n_2 = 20 \left(\frac{30}{120} \right) = 5$$

$$n_4 = 20 \left(\frac{30}{120} \right) = 5$$

Estrato 1

$$\bar{x} = \frac{1,020}{5} = 204$$

$$\sum f_i = 1,020$$

$$\sum f_i^2 = 209,800$$

$$S^2 = \frac{209,800 - \frac{(1,020)^2}{5}}{4}$$

$$S^2 = 430$$

Estrato 2

$$\bar{x} = \frac{1,005}{5} = 201$$

$$\sum f_i = 1,005$$

$$\sum f_i^2 = 203,925$$

$$S^2 = \frac{203,925 - \frac{(1,005)^2}{5}}{4}$$

$$S^2 = 480$$

Estrato 3

$$\bar{x} = \frac{1,088}{5} = 217.6$$

$$\sum f_i = 1,088$$

$$\sum f_i^2 = 238,014$$

$$S^2 = \frac{238,014 - \frac{(1,088)^2}{5}}{4}$$

$$S^2 = 316.3$$

Ejercicio 1

Estrato 4

$$\bar{x} = \frac{1,055}{5} = 211$$

$$S^2 = \frac{222,975 - \frac{(1,055)^2}{5}}{4}$$

$$\sum f_i = 1,055$$

$$S^2 = \underline{92.5}$$

$$\sum f_i^2 = 222,975$$

$$\bar{y}_{st} = \frac{1}{120} \sum_{i=1}^4 = (30 \times 204) + (30 \times 201) + (30 \times 217.6) + (30 \times 211) = \div 120 = 208.4$$

$$\bar{y}_{st} = \underline{208.4}$$

$$\frac{(N_1 - n_1)}{N_1} = \frac{30 - 5}{30} = \frac{5}{6}$$

$$\left(\frac{1}{120^2}\right) \left(\frac{5}{6}\right) \left[(30)^2 \left(\frac{430}{5}\right) + (30)^2 \left(\frac{480}{5}\right) + (30)^2 \left(\frac{316.6}{5}\right) + (30)^2 \right]$$

$$\left(\frac{92.5}{5}\right) = \times \frac{5}{6} \div 120^2 = \underline{13.73}$$

$$208.4 \pm 2\sqrt{13.73}$$

$$208.4 \pm 7.4$$

$$208.4 \begin{matrix} \nearrow 7.4 \\ \searrow 7.4 \end{matrix}$$

Ejercicio 2

	Estrato 1	Estrato 2	Estrato 3	Estrato 4
$N_1 = 24$	115	100	115	98
$N_2 = 36$	105	125	100	96
$N_3 = 30$	98	120	104	140
$N_4 = 30$	90	102	106	116
$n = 40$	103	93	108	100
$N = 120$	108	98	98	105
	112	99	97	103
	100	105	107	123
		104	110	115
		106	108	100
		115		
		100		

$$n_1 = 40 \left(\frac{24}{120} \right) = 8$$

$$n_3 = 40 \left(\frac{30}{120} \right) = 10$$

$$n_2 = 40 \left(\frac{36}{120} \right) = 12$$

$$n_4 = 40 \left(\frac{30}{120} \right) = 10$$

Estrato 1

$$\bar{x} = \frac{831}{8} = 103.875$$

$$\sum f_i = 831$$

$$\sum f_i^2 = 86,771$$

$$s^2 = \frac{86,771 - \frac{(831)^2}{8}}{7}$$

$$s^2 = 64.41$$

Estrato 2

$$\bar{x} = \frac{1,267}{12} = 105.58$$

$$\sum f_i = 1,267$$

$$\sum f_i^2 = 134,785$$

$$s^2 = \frac{134,785 - \frac{(1,267)^2}{12}}{11}$$

$$s^2 = 91.90$$

Ejercicio 2

Estrato 3

$$\bar{x} = \frac{1,053}{10} = 105.3$$

$$\sum f_i = 1,053$$

$$\sum f_i^2 = 111,167$$

$$s^2 = \frac{111,167 - \left(\frac{1,053}{10}\right)^2}{9}$$

$$s^2 = \underline{31.78}$$

Estrato 4

$$\bar{x} = \frac{1,096}{10} = 109.6$$

$$\sum f_i = 1,096$$

$$\sum f_i^2 = 121,864$$

$$s^2 = \frac{121,864 - \left(\frac{1,096}{10}\right)^2}{9}$$

$$s^2 = \underline{193.6}$$

$$\bar{y}_{st} = \frac{1}{120} \sum_{i=1}^4 y_i = (24 \times 103.87) + (36 \times 105.58) + (30 \times 105.3) + (30 \times 109.6) =$$
$$\div 120 = \underline{106.17}$$

$$\bar{y}_{st} = \underline{106.17}$$

$$\left(\frac{N_1 - n_1}{N_1}\right) = \frac{24 - 8}{24} = \frac{2}{3}$$

$$\left(\frac{1}{120^2}\right) \left(\frac{2}{3}\right) \left[(24)^2 \left(\frac{64.41}{8}\right) + (36)^2 \left(\frac{91.90}{12}\right) + (30)^2 \left(\frac{31.78}{10}\right) + \right.$$

$$\left. (30)^2 \left(\frac{193.6}{10}\right) \right] = \times \frac{2}{3} \div 120^2 = \underline{1.61}$$

$$106.17 \pm 2\sqrt{1.61}$$

$$106.17 \pm 2.53$$

$$106.17 \begin{matrix} \rightarrow 2.53 \\ \downarrow \\ 2.53 \end{matrix}$$