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Grupo: B

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Datos agrupados "# 1 ejercicio"

50	49	25	30	47
29	46	34	48	25
20	33	49	40	38
31	39	43	43	35
28	23	20	44	31

Rango = $\frac{\text{# mayor} - \text{# menor}}{\text{intervalo}}$

Rango = $\frac{50 - 20}{6}$

Rango = $\frac{30}{6}$

Rango = 5

Intervalo

20 25 = 3

25 30 = 4

30 35 = 5

35 40 = 2

40 45 = 4

45 50 = 7

25

Intervalos	f_i	%f_i	f_{ia}	%f_{ia}	$\bar{x}_i$	$f_i \cdot \bar{x}$	x^2	$f_i \cdot \bar{x}^2$
20 - 25	3	12%	3	12%	22.5	67.5	506.25	1518.75
25 - 30	4	16%	7	28%	27.5	110	756.25	3025
30 - 35	5	20%	12	48%	32.5	162.5	1056.25	5281.25
35 - 40	2	8%	14	56%	37.5	75	1406.25	2812.5
40 - 45	4	16%	18	72%	42.5	170	1806.25	7225
45 - 50	7	28%	25	100%	47.5	332.5	2256.25	15793.75
	= 25					$\Sigma f_i \cdot \bar{x} = 917.5$		$\Sigma f_i \cdot \bar{x} = 35656.25$

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Ejercicio 1

Media $\bar{x} = \frac{\sum f_i x_i}{n}$

Moda $= \frac{917.5}{25}$

Media $= 36.7$ //

$S = \sqrt{413.3}$

$S = 20.33$ //

Mediana $= L_i + \frac{\frac{n}{2} - f_{i-1}}{a_i} \cdot a_i \quad \frac{n}{2} = \frac{25}{2} = 12.5$

Mediana $= \frac{35 + 12.5 - 12}{2} \cdot 5$

Mediana $= 36.25$ //

Moda $= \frac{L_i + f_i - f_{i-1}}{f_i - f_{i-1} + f_i - f_{i+1}} \cdot a_i$

Moda $= \frac{45 + 7 - 4}{(7-4) + 7 - 5)} \cdot 5$

Moda $= 46.5$ //

Varianza $s^2 = \frac{\sum f_i x_i^2 - \frac{(\sum f_i x_i)^2}{n}}{n-1} \cdot 5$

Varianza $s^2 = \frac{55656.25 - \frac{(917.5)^2}{25}}{24} \cdot 5$

Varianza $= 413.33$ //

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Datos agrupados # 2 ejercicio

80	75	71	80	71	44
38	56	80	42	68	42
70	40	75	41	53	54
78	42	66	45	64	38
55	56	73	56	41	64
38	67	79	44	44	38

Rango = $\frac{\#\text{ mayor} - \#\text{ menor}}{7}$

Rango = $\frac{80-38}{7}$

Rango = $\frac{42}{7}$

Rango = 6ampl. lid

Intervalo

38 44 - 8
44 50 - 5
50 56 - 3
56 62 - 4
62 68 - 4
68 74 - 5
74 80 - 7

intervalos	Fi	% Fi	F.a	% F.a	$\bar{x}_i$	$f_i \cdot \bar{x}$	x^2	$f_i \cdot \bar{x}_i$
38 - 44	8	22.22%	8	22.22%	41	328	1681	13448
44 - 50	5	13.88%	13	36.11%	47	235	2209	11045
50 - 56	3	8.33%	16	44.44%	53	159	2809	8427
56 - 62	4	11.11%	20	55.55%	59	236	3481	13924
62 - 68	4	11.11%	24	66.66%	65	260	4225	16900
68 - 74	5	13.88%	29	80.55%	71	355	5041	25205
74 - 80	7	19.44%	36	100%	77	2772	5929	41503
	- 36					$\sum f_i \cdot \bar{x}_i = 4345$		$\sum f_i \cdot \bar{x}_i = 130452$

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ejercicio 2

$\sum f_i = 36$

$\sum f_i \bar{x}_i = 2132$

$\sum f_i \bar{x}_i^2 = 130452$

$$\text{media} = \frac{\sum f_i \bar{x}_i}{n}$$

$$\text{media} = \frac{2132}{36}$$

media = 59.22 //

$$\text{Mediana} = \frac{L_i n - f_{ia} \cdot a_i}{f_i} \quad \frac{n}{2} = \frac{36}{2} = 18$$

$$\text{Mediano} = \frac{36 + 18 - 16 \cdot 6}{4}$$

Mediana = 59 //

$$\text{Moda} = \frac{L_i + f_i - f_{i-1} \cdot a_i}{f_i - f_i + f_i - f_{i+1}}$$

$$\text{Moda} = \frac{38 + 8 \cdot 0}{(8-0)+(8-5)} \cdot 6$$

Moda = 42.36

$$\text{Varianza} = \frac{\sum f_i \bar{x}_i^2 - (\sum f_i \bar{x}_i)^2}{n}$$

$$n - 1$$

$$\text{Varianza} = 130452 - \frac{(2132)^2}{36} \cdot 6$$

$$35$$

Varianza = 718.32 //

$S = \sqrt{718.32}$

S = 26.80 //

Ejercicio 1

N = 45000

P = 0.5

q = 1 - P = 1 - 0.5 = 0.5

B = 3% = 0.03

$D = \frac{B^2}{4} = \frac{(0.03)}{4} = 0.000225$

$n = \frac{N.P.q}{(N-1)D + P.q}$

$n = \frac{45000(0.5)(0.5)}{(44999)(0.5)(0.000225)} = 1084.$

n = 1083

Ejercico 2

N = 20000

P = 72.5% = 0.725

q = 1 - 0.725 = 0.275

B = 5% = 0.05

$D = \frac{B^2}{4} = \frac{(0.02)^2}{4} = 0.000625$

$n = \frac{N.P.q}{(N-1)D + P.q}$

$n = \frac{20000(0.725)(0.275)}{19999(0.000625) + 0.725(0.275)}$

n = 314

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Ejercicio 3

$N = 50000$

$P = 76\% = 0.76$

$q = 1 - P = 1 - 0.76 = 0.24$

$B = 4\% = 0.04$

$D = \frac{B^2}{4} = \frac{(0.04)^2}{4} = 0.0004$

$$n = \frac{N \cdot P \cdot q}{(N-1)D + P \cdot q}$$

$$n = \frac{50000(0.76)(0.24)}{49999(0.0004) + (0.76)(0.24)} = 451.88$$

$n = 452$

Ejercicio 4

$N = 10000$

$P = 0.5$

$q = 1 - P = 1 - 0.5 = 0.5$

$B = 5\% = 0.05$

$D = \frac{B^2}{4} = \frac{(0.05)^2}{4} = 0.000625$

$$n = \frac{N \cdot P \cdot q}{(N-1)D + P \cdot q}$$

$$n = \frac{10000(0.5)(0.5)}{9999(0.000625) + (0.5)(0.5)} = 384.63$$

$n = 385$

Ejercicio 5

$N = 25000$

$P = 55\% = 0.55$

$q = 1 - P = 1 - 0.55 = 0.45$

$B = 2\% = 0.02$

$D = \frac{B^2}{4} = \frac{(0.02)^2}{4} = 0.0001$

$$n = \frac{N \cdot P \cdot q}{(N-1)D + P \cdot q}$$

$$n = \frac{25000(0.55)(0.45)}{24999(0.0001) + (0.55)(0.45)}$$

$n = 2253$

Ejercicio 6

$N = 15000$

$P = 66\% = 0.66$

$q = 1 - P = 1 - 0.66 = 0.34$

$B = 3\% = 0.03$

$D = \frac{B^2}{4} = \frac{(0.03)^2}{4} = 0.000225$

$$n = \frac{N \cdot P \cdot q}{(N-1)D + P \cdot q}$$

$$n = \frac{15000(0.66)(0.34)}{14999(0.000225) + (0.66)(0.34)} = 980.2$$

$n = 936$

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