

Tema:

# Cuartiles, Deciles, Percentiles



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- CARRERA: CONTADURIA Y FINANZAS
- CUATRIMESTRE: 3°
- MATERIA: ESTADISTICA DESCRIPTIVA

## Datos Agrupados

datos	$F_i$	$F_{i+c}$	mc	$F_i \cdot mc$	$f_r$	$F_r \%$
15-35	8	8	25	200	0.6666666666	16.6666667%
35-55	4	12	45	180	0.0833333333	8.33333333%
55-75	12	24	65	975	0.25	25%
75-95	8	32	85	680	0.1666666666	16.66666667%
95-115	7	39	105	735	0.1458333333	14.58333333%
115-135	3	42	125	375	0.0625	6.25%
135-155	6	48	145	870	0.125	12.5%

$$N=48$$

## Coartiles 1, 2, 3

datos	$f_i$	$F_i$
25-35	8	8
35-45	4	12
45-55	12	24
55-65	8	32
65-75	7	39
75-85	3	42
85-95	6	48

$$Q_k = L_i + A \left( \frac{\frac{kn}{4} - F_{i-1}}{F_i - F_{i-1}} \right) \text{ Posición } \frac{kn}{4}$$

$$\textcircled{1} Q_1 \rightarrow \frac{1 \times 48}{4} = 12$$

$$Q_1 = L_0 = 45 \quad Q_1 = 45$$

$$\textcircled{2} Q_2 \rightarrow \frac{2 \times 48}{4} = 24$$

$$Q_2 = L_0 = 55 \quad Q_2 = 55$$

$$\textcircled{3} Q_3 \rightarrow \frac{3 \times 48}{4} = 36$$

$$F_{i-1} = 32 \quad L_i = 65$$

$$F_i = 39 \quad A = L_0 - L_i = 5$$

$$Q_3 = 65 + 5 \left( \frac{36 - 32}{39 - 32} \right)$$

$$Q_3 = 65 + 5 \left( \frac{4}{7} \right)$$

$$Q_3 = 65 + 5 \times 0.571428$$

$$Q_3 = 65 + 2.85714$$

$$Q_3 = 67.85714$$

Deal 3, 7, 9.

$$D_k = L_i + A \left( \frac{\frac{kn}{10} - F_{i-1}}{F_i - F_{i-1}} \right) \text{ Posición } \frac{kn}{10}$$

datos	$f_i$	$F_i$
25-35	8	8
35-45	4	12
45-55	12	24
55-65	8	32
65-75	7	39
75-85	3	42
85-95	6	48

$$\textcircled{1} D_3 \rightarrow \frac{3 \times 48}{10} = 14.4$$

$$L_{i-1} = 12 \quad L_i = 45$$

$$F_i = 24 \quad A = L_i - L_{i-1} = 10$$

$$D_3 = 45 + 10 \left( \frac{14.4 - 12}{24 - 12} \right)$$

$$D_3 = 45 + 10 \left( \frac{2.4}{12} \right)$$

$$D_3 = 45 + 2$$

$$D_3 = 47$$

$$\textcircled{2} D_7 \rightarrow \frac{7 \times 48}{10} = 36.6$$

$$L_{i-1} = 32 \quad L_i = 65$$

$$F_i = 39 \quad A = L_i - L_{i-1} = 10$$

$$D_7 = 65 + 10 \left( \frac{36.6 - 32}{39 - 32} \right)$$

$$D_7 = 65 + 10 \left( \frac{4.6}{7} \right)$$

$$D_7 = 65 + 6.5714$$

$$D_7 = 71.5714$$

$$\textcircled{3} D_9 \rightarrow \frac{9 \times 48}{10} = 43.2$$

$$L_{i-1} = 42 \quad L_i = 85$$

$$F_i = 48 \quad A = L_i - L_{i-1} = 10$$

$$D_9 = 85 + 10 \left( \frac{43.2 - 42}{48 - 42} \right)$$

$$D_9 = 85 + 10 \left( \frac{1.2}{6} \right)$$

$$D_9 = 85 + 2$$

$$D_9 = 87$$

Percentil 40, 57, 78

datos	$F_i$	$F_i$
25-35	8	8
35-45	4	12
45-55	12	24
55-65	8	32
65-75	7	39
75-85	3	42
85-95	6	48

$$P_k = L_i + A \left( \frac{\frac{kn}{100} - F_{i-1}}{F_i - F_{i-1}} \right) \quad \text{Posición } \frac{kn}{100}$$

$$\textcircled{1} P_{40} \rightarrow \frac{40 \times 48}{100} = 19.2$$

$$F_{i-1} = 12 \quad L_i = 45$$

$$F_i = 24 \quad A = 10$$

$$P_{40} = 45 + 10 \left( \frac{19.2 - 12}{24 - 12} \right)$$

$$P_{40} = 45 + 10 \left( \frac{7.2}{12} \right)$$

$$P_{40} = 45 + 6$$

$$P_{40} = 51$$

$$\textcircled{2} P_{57} \rightarrow \frac{57 \times 48}{100} = 27.36$$

$$F_{i-1} = 24 \quad L_i = 55$$

$$F_i = 32 \quad A = 10$$

$$P_{57} = 55 + 10 \left( \frac{27.36 - 24}{32 - 24} \right)$$

$$P_{57} = 55 + 10 \left( \frac{3.36}{8} \right)$$

$$P_{57} = 55 + 4.2$$

$$P_{57} = 59.2$$

$$\textcircled{3} P_{78} \rightarrow \frac{78 \times 48}{100} = 37.44$$

$$F_{i-1} = 32 \quad L_i = 65$$

$$F_i = 39 \quad A = 10$$

$$P_{78} = 65 + 10 \left( \frac{37.44 - 32}{39 - 32} \right)$$

$$P_{78} = 65 + 10 \left( \frac{5.44}{7} \right)$$

$$P_{78} = 65 + 7.77$$

$$P_{78} = 72.77$$