

Miguel Ángel González Pulido

Instrucciones: Complete la siguiente tabla para datos agrupados

datos	fi	fire	mc	fi . mc	fr	fir
15-35	8	8	25	200	0.1666666667	16.66666667
35-55	4	12	45	180	0.0833333333	8.33333333
55-75	12	24	65	780	0.25	25
75-95	8	32	85	680	0.1666666667	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

Instrucciones:

Dada la siguiente tabla calcule:

Cuartil 1,2,3

Decil 3,7,9

Percentil 40, 57, 78

datos	fi	Fi
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

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Cuartil 1, 2, 3

Decil 3, 7, 9

Percentil 40, 57, 78

Cuartiles

Datos	$F_i$	$F_i$	Cuartil 1
25-35	8	8	$Q_k = L_i + A \left( \frac{\frac{kn}{4} - F_i - 1}{F_i - F_{i-1}} \right)$
35-45	4	12	Posición $\frac{kn}{4} = \frac{1 \cdot 48}{4} = 12$
45-55	12	24	$Q_1 = L_i = 45$
55-65	8	32	
65-75	7	39	
75-85	3	42	$Q_2 = \text{Cuartil 2}$
85-95	6	48	$Q_k = L_i + A \left( \frac{\frac{kn}{4} - F_i - 1}{F_i - F_{i-1}} \right)$

Posición  $\frac{kn}{4} = \frac{2 \cdot 48}{4} = 24$

$Q_2 = L_i = 55$

Cuartil 3

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

Posición  $\frac{kn}{4} = \frac{3 \cdot 48}{4} = 36$

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

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

$$Q_3 = 65 + 10 \left( \frac{36 - 32}{39 - 32} \right)$$

$$Q_3 = 65 + 10 \left( \frac{4}{7} \right)$$

$Q_3 = 65 + 5.7142857143$

$Q_3 = 70.7142857143$

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### Deciles

Decil 3

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

$$\text{Posición } \frac{kn}{10} = \frac{3 \cdot 48}{10} = 14.4$$

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

$$F_i = 24 \quad A = L_j - L_i = 10$$

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

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

$$D_3 = 45 + 2$$

$$D_3 = 47$$

Decil 7

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

$$\text{Posición} = \frac{kn}{10} = \frac{7 \cdot 48}{10} = 33.6$$

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

$$F_i = 39 \quad A = L_j - L_i = 10$$

$$D_7 = 65 + 10 \left( \frac{33.6 - 32}{39 - 32} \right)$$

$$D_7 = 65 + 10 \left( \frac{1.6}{7} \right)$$

$$D_7 = 65 + 2.2857142857$$

$$D_7 = 67.2857142857$$

Decil 9

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

$$\text{Posición} = \frac{kn}{10} = \frac{9 \cdot 48}{10} = 43.2$$

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

$$F_i = 48 \quad A = L_j - L_i = 10$$

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

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

$$D_9 = 85 + 2$$

$$D_9 = 87$$

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Percentil 40  
$$PK = L_i + A \left( \frac{\frac{Kn}{100} - F_{i-1}}{F_i - F_{i-1}} \right)$$

Posición  $\frac{Kn}{100} = \frac{40 \cdot 48}{100} = 19.2$

$F_{i-1} = 12$     $L_i = 45$   
 $F_i = 24$     $A = L_o - L_i = 10$

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

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

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

$$P_{40} = 51$$

Percentil 57  
$$PK = L_i + A \left( \frac{\frac{Kn}{100} - F_{i-1}}{F_i - F_{i-1}} \right)$$

Posición  $\frac{Kn}{100} = \frac{57 \cdot 48}{100} = 27.36$

$F_{i-1} = 24$     $L_i = 55$   
 $F_i = 32$     $A = L_o - L_i = 10$

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

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

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

$$P_{57} = 59.2$$

Percentil 78  
$$PK = L_i + A \left( \frac{\frac{Kn}{100} - F_{i-1}}{F_i - F_{i-1}} \right)$$

Posición  $= \frac{Kn}{100} = \frac{78 \cdot 48}{100} = 37.44$

$F_{i-1} = 32$     $L_i = 65$   
 $F_i = 39$     $A = L_o - L_i = 10$

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

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

$$P_{78} = 65 + 7.7714285714$$

$$P_{78} = 72.7714285714$$