

Universidad del Sureste



Estadística descriptiva.

ING. JORGE ENRIQUE ALBORES

ANTONIO DE JESÚS
SÁNCHEZ RODRÍGUEZ

Antonio de Jesús Sánchez

Datos	f _i	fire	mc	f _i .mc	f _r	f _r
15-35	8	8	25	200	0.166	16.6
35-55	4	12	45	180	0.083	8.3
55-75	12	24	65	780	0.25	25
75-95	8	32	85	680	0.166	16.6
95-115	7	39	105	735	0.145	14.5
115-135	3	42	125	375	0.062	6.2
135-155	6	48	145	870	0.125	12.5

Promedio

$$\bar{x} = \frac{\sum mc \cdot f_i}{N}$$

$$= \frac{200 + 180 + 780 + 680 + 735 + 375 + 870}{48}$$

Promedio = 79.58

Moda

$$Mo = Li + \left(\frac{f_i + 1}{(f_i - 1) + (f_i + 1)} \right) A$$

$$Mo = 55 + \left(\frac{8}{4 + 8} \right) 20$$

$$Mo = 55 + \left(\frac{8}{12} \right) 20$$

$$Mo = 55 + 13.33$$

$$Mo = \underline{68.33}$$

$$Q_3 = (N)(75)/100$$

$$Q_3 = (48)(75)/100$$

$$Q_3 = 36$$

$$Q_3 = 95 + \left(\frac{36 - 32}{7} \right) 20$$

$$Q_3 = \underline{106.42}$$

Mediana

$$M = Li + \left(\frac{\frac{N}{2} - (F_i - 1)}{f_i} \right) A$$

$$M = 55 + \left(\frac{24 - 12}{12} \right) 20$$

$$M = 55 + (1)(20)$$

$$M = \underline{75}$$

Porcentil 70

$$P_{70} = \frac{N \cdot 70}{100} = 33.6 \leq f$$

$$P_{70} = \left(\frac{\frac{XN}{100} - (f_{ac} - 1)}{f_i} \right) \cdot A$$

$$P_{70} = 95 + \left(\frac{33.6 - 32}{7} \right) 20$$

$$P_{70} = 95 + \left(\frac{1.6}{7} \right) 20$$

$$P_{70} = \underline{99.57}$$

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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

Posición $Q_1 = (1)(48)/4 = 12$

$Q_1 = L_0 \quad Q_1 = 45$

Posición $Q_2 = (2)(48)/4 = 24$

$Q_2 = 55$

Posición $Q_3 = (3)(48)/4 = 36$

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

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

$$Q_3 = \underline{70.71}$$

$F_i - 1 = 32 \quad Li = 65$
 $F_i = 39 \quad A = 10$

Posición $D_3 = (3)(48)/10 = 14.4$

$$D_3 = 45 + 10 \left(\frac{14.4 - 12}{24 - 12} \right) = 45 + 10 \left(\frac{2.4}{2} \right) = \underline{57}$$

Posición $D_7 = (7)(48)/10 = 33.6$

$$D_7 = 65 + 10 \left(\frac{33.6 - 32}{39 - 32} \right) = 65 + 10 \left(\frac{1.6}{7} \right) = \underline{67.28}$$

Posición $D_9 = (9)(48)/10 = 43.2$

$$D_9 = 85 + 10 \left(\frac{43.2 - 42}{48 - 42} \right) = 85 + 10 \left(\frac{1.2}{6} \right)$$

$$D_9 = 85 + 2 = \underline{87}$$

$D_9 = (9)(48)/10 = 43.2$

Porcentil 40, 57, 78
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$$\text{Posición } P_{40} = (40)(48)/100 = \underline{19.2} \quad \begin{array}{l} F_i = 24 \quad L_i = 45 \\ F_{i-1} = 12 \quad A = 10 \end{array}$$

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

$$P_{40} = 45 + 10 \left(\frac{7.2}{12} \right) = 45 + 6$$

$$P_{40} = \underline{51}$$

$$\text{Posición } P_{57} = (57)(48)/100 = 27.36$$

$$P_{57} = 55 + 10 \left(\frac{27.36 - 24}{32 - 24} \right) = 55 + 10 \left(\frac{3.36}{8} \right)$$

$$P_{57} = \underline{59.2}$$

$$\text{Posición } P_{78} = (78)(48)/100 = 37.44$$

$$P_{78} = 65 + 10 \left(\frac{37.44 - 32}{39 - 32} \right) = 65 + 10 \left(\frac{5.44}{7} \right)$$

$$P_{78} = \underline{72.77}$$