

Tema: Cuartiles y Deciles



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

Calculo de cuartiles (1, 2, 3)

datos	F	Fire
30-35	3	3
35-40	7	10
40-45	12	22
45-50	23	45
50-55	14	59
55-60	1	60

$N=60$

① $Q_1 \rightarrow \frac{1 \times 60}{4} = 15$ posición

$F_{i-1} = 10$ $L_i = 40$
 $F_i = 22$ $A = L_5 - L_i = 5$

$$Q_1 = 40 + 5 \left(\frac{15 - 10}{22 - 10} \right)$$

$$Q_1 = 40 + 5 \left(\frac{5}{12} \right)$$

$$Q_1 = 40 + 5 \times 0.416$$

$$Q_1 = 40 + 2.08$$

$$Q_1 = 42.08$$

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

posición $\frac{kn}{4}$

② $Q_2 \rightarrow \frac{2 \times 60}{4} = 30$

$F_{i-1} = 22$ $L_i = 45$
 $F_i = 45$ $A = L_5 - L_i = 5$

$$Q_2 = 45 + 5 \left(\frac{30 - 22}{45 - 22} \right)$$

$$Q_2 = 45 + 5 \left(\frac{8}{23} \right)$$

$$Q_2 = 45 + 5 \times 0.3478$$

$$Q_2 = 45 + 1.739$$

$$Q_2 = 46.739$$

③ $Q_3 \rightarrow \frac{3 \times 60}{4} = 45$

$$Q_3 = L_5 = 50$$

$$Q_3 = 50$$

Calculo de deciles (1, 2, 3, 4, 5)

datos	F	Fire
30-35	3	3
35-40	7	10
40-45	12	22
45-50	23	45
50-55	14	59
55-60	1	60

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

posición $\frac{kn}{10}$

$$\textcircled{1} D_1 \rightarrow \frac{1 \times 60}{10} = 6$$

$$F_{i-1} = 3$$

$$F_i = 10$$

$$L_i = 35$$

$$A = 60 - 35 = 25$$

$$D_1 = 35 + 25 \left(\frac{6 - 3}{10 - 3} \right)$$

$$D_1 = 35 + 25 \cdot \left(\frac{3}{7} \right)$$

$$D_1 = 35 + 2.142$$

$$D_1 = 37.142$$

$$\textcircled{2} D_2 \rightarrow \frac{2 \times 60}{10} = 12$$

$$F_{i-1} = 10$$

$$F_i = 22$$

$$L_i = 40$$

$$A = 60 - 40 = 20$$

$$D_2 = 40 + 20 \left(\frac{12 - 10}{22 - 10} \right)$$

$$D_2 = 40 + 20 \cdot \left(\frac{2}{12} \right)$$

$$D_2 = 40 + 0.83$$

$$D_2 = 40.83$$

deciles

$$\textcircled{3} D_3 \rightarrow \frac{3 \times 60}{10} = 18$$

$$F_{i-1} = 10 \quad L_i = 40$$

$$F_i = 22 \quad A = L_5 - L_i = 5$$

$$D_3 = 40 + 5 \left(\frac{18 - 10}{22 - 10} \right)$$

$$D_3 = 40 + 5 \cdot \left(\frac{8}{12} \right)$$

$$D_3 = 40 + 3.333$$

$$D_3 = 43.333$$

$$\textcircled{4} D_4 = \frac{4 \times 60}{10} = 24$$

$$L_{i-1} = 22 \quad L_i = 45$$

$$F_i = 45 \quad A = L_5 - L_i = 5$$

$$D_3 = 45 + 5 \left(\frac{24 - 22}{45 - 22} \right)$$

$$D_3 = 45 + 5 \cdot \left(\frac{2}{23} \right)$$

$$D_3 = 45 + 0.434$$

$$D_3 = 45.434$$

$$\textcircled{5} D_5 \rightarrow \frac{5 \times 60}{10} = 30$$

$$L_{i-1} = 22 \quad L_i = 45$$

$$F_i = 45 \quad A = L_5 - L_i = 5$$

$$D_5 = 45 + 5 \left(\frac{30 - 22}{45 - 22} \right)$$

$$D_5 = 45 + 5 \left(\frac{8}{23} \right)$$

$$D_5 = 45 + 1.739$$

$$D_5 = 46.739$$