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- ➔ **MATERIA: ESTADISTICA DESCRIPTIVA**
 - ➔ **DOCENTE: JORGE ENRIQUE ALBORES**
 - ➔ **ALUMNO: LOPEZ VELASCO GIBRAN ANTONIO**
 - ➔ **ACTIVIDAD: EJERCICIOS**

Percentil
9, 55, 69, 72

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

Posición 9 $P_9 = \frac{(9)(67)}{100} = 6.03$
 $F_{i-1} = 0 \quad L_i = 10$
 $F_i = 6 \quad A = 5$

$$P_9 = 10 + 5 \left(\frac{6.03 - 0}{6 - 0} \right) = 10 + 5 \left(\frac{6.03}{6} \right) = 10 + 3.76 = \underline{P_9 = 13.76}$$

Posición 55 $P_{55} = \frac{(55)(67)}{100} = 36.85$

$$P_{55} = 35 + 5 \left(\frac{36.85 - 33}{43 - 33} \right) = 35 + 5 \left(\frac{3.85}{10} \right) =$$

$F_{i-1} = 33 \quad L_i = 35$
 $F_i = 43 \quad A = 5$

 $\Rightarrow \underline{P_{55} = 36.925}$

Posición 69 $P_{69} = \frac{(69)(67)}{100} = 46.23$

$$P_{69} = 40 + 5 \left(\frac{46.23 - 43}{52 - 43} \right) = 40 + 5 \left(\frac{3.23}{9} \right) = 40 + 1.794 = \underline{P_{69} = 41.7944}$$

$F_{i-1} = 43 \quad L_i = 40$
 $F_i = 52 \quad A = 5$

Posición 72 $P_{72} = \frac{(72)(67)}{100} = 48.24$

$$P_{72} = \left(\frac{48.24 - 43}{52 - 43} \right) = 40 + 5 \left(\frac{5.24}{9} \right) = 40 + 2.911 = \underline{P_{72} = 42.911}$$

$F_{i-1} = 43 \quad L_i = 40$
 $F_i = 52 \quad A = 5$

Deciles

2, 4, 6, 8 y 9

$$DK = Li + h \left(\frac{kn/10 - Fi-1}{Fi - Fi-1} \right) \quad \text{posición } kn/10$$

$$\text{Posición } D_2 = \frac{(2)(67)}{10} = \frac{134}{10} = 13.4$$

$$D_2 = 15 + \frac{13.4 - 8}{20 - 8} = 15 + \frac{5.4}{12} = 15 + 2.25 = 17.25$$

$F_{i-1} = 8$	$L_i = 15$
$F_i = 20$	$A = 5$

$D_2 = 17.25$

$$\text{Posición } D_4 = \frac{(4)(67)}{10} = 26.8$$

$$D_4 = 25 + \frac{26.8 - 23}{29 - 23} = 25 + \frac{3.8}{6} = 25 + 3.16 = 28.166$$

$F_{i-1} = 23$	$L_i = 25$
$F_i = 29$	$A = 5$

$D_4 = 28.166$

$$\text{Posición } D_6 = \frac{(6)(67)}{10} = \frac{402}{10} = 40.2$$

$$D_6 = 35 + \frac{40.2 - 33}{43 - 33} = 35 + \frac{7.2}{10} = 35 + 3.6 = 38.6$$

$F_{i-1} = 33$	$L_i = 35$
$F_i = 43$	$A = 5$

$D_6 = 38.6$

$$\text{Posición } D_8 = \frac{(8)(67)}{10} = 53.6$$

$$D_8 = 45 + \frac{53.6 - 52}{60 - 52} = 45 + \frac{1.6}{8} = 45 + 1 = 46$$

$F_{i-1} = 52$	$L_i = 45$
$F_i = 60$	$A = 5$

$D_8 = 46$

$$\text{Posición } D_9 = \frac{(9)(67)}{10} = 60.3$$

$$D_9 = 50 + \frac{60.3 - 60}{67 - 50} = 50 + \frac{0.3}{7} = 50 + 0.214 = 50.214$$

$F_{i-1} = 60$	$L_i = 50$
$F_i = 67$	$A = 5$

$D_9 = 50.214$

Intervalo	P	F
10 - 15	8	8
15 - 20	12	20
20 - 25	3	23
25 - 30	6	29
30 - 35	4	33
35 - 40	10	43
40 - 45	9	50
45 - 50	8	60
50 - 55	7	67

Posición $K_{n/4}$

$$Q_k = L_{i-1} + \left(\frac{K_{n/4} - F_{i-1}}{f_i - F_{i-1}} \right)$$

Cuartiles Q_1, Q_2, Q_3

$F_{i-1} = 8$	$L_i = 15$
$F_i = 20$	$h = 5$

Posición $Q_1 = \frac{(1)(67)}{4} = \frac{67}{4} = 16.75$

$$Q_1 = 15 + 5 \left(\frac{16.75 - 8}{20 - 8} \right) = 15 \left(\frac{8.75}{12} \right) = 15(0.729) = 15.945$$

Posición $Q_2 = \frac{(2)(67)}{4} = \frac{134}{4} = 33.5$

$F_{i-1} = 33$	$L_i = 35$
$F_i = 43$	$h = 5$

$$Q_2 = 35 + 5 \left(\frac{33.5 - 33}{43 - 33} \right) = 35 + 5 \left(\frac{0.5}{10} \right) = 35 + 0.25 = 35.25$$

Posición $Q_3 = \frac{(3)(67)}{4} = \frac{201}{4} = 50.25$

$$Q_3 = 40 + 5 \left(\frac{50.25 - 43}{52 - 43} \right) = 40 + 5 \left(\frac{7.25}{9} \right) = 40 + 4.027 = 44.027$$