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Estadística

Actividad #8

Puntos de 25 alumnos en un examen de Contabilidad de Sociedades.

1.

49	55	65	66	66	70	72	72	72	74
75	75	76	76	77	78	79	80	81	81
81	81	83	84	90					

2. $K = 1 + 3.322 \log(n)$

$K = 1 + 3.322 \log(25)$

$K = 1 + 3.322\,(1.39794)$

$K = 1 + 4.64$

$K = 5.64$

3. $R = Dma - Dme + 1$

$R = 90 - 49 + 1$

$R = 41 + 1$

$R = 42$

4. $i = \frac{R}{K} = \frac{42}{5.64} = 7.45 = 7$

5.

K	LA	LrI	Lrs	Xs	F	Fa	Fxs
1	49 - 55	48.5	55.5	52	2	2	104
2	56 - 62	55.5	62.5	59	0	2	0
3	63 - 69	62.5	69.5	66	3	5	198
4	70 - 76	69.5	76.5	73	9	14	657
5	77 - 83	76.5	83.5	80	9	23	720
6	84 - 90	83.5	90.5	87	2	25	174

D1 P15
✓ Q1 Q2
Q3 D6 D9 P70
P95

$\Sigma fxs = 1853$

6. $\bar{X} = \frac{\Sigma F x s}{N} = \frac{1853}{25} = 74.12$

$Md = Lri + \frac{(\frac{N}{2} - Faa)}{F} i$

$Md = 69.5 + \frac{(12.5 - 5)}{9} 7 \quad Md = 69.5 + \frac{(7.5)}{9} 7$

$Md = 69.5 + (0.83) 7 \quad Md = 69.5 + 5.87 = 75.37$

$Mo = Lri + \frac{(\Delta 1)}{\Delta 1 + \Delta 2} i \quad \Delta 1 = 9 - 3 = 6 \quad \Delta 1 = 9 - 9 = 0$

$\Delta 2 = 9 - 9 = 0 \quad \Delta_2 = 9 - 2 = 7$

$Mo = 69.5 + \frac{(6)}{6+0} 7 \quad Mo = 69.5 + (1) 7$

$Mo = 69.5 + 7 = 76.5$

$Mo = 76.5 + \frac{(0)}{0+7} 7 \quad Mo = 76.5 + (0) 7$

$Mo = 76.5 + 0 = 76.5$

7. $Q_1 = Lri + \left(\frac{\frac{N}{4} - Faa}{F}\right) i$

$Q_1 = 69.5 + \left(\frac{6.25 - 5}{9}\right) 7$

$Q_1 = 69.5 + \left(\frac{1.25}{9}\right) 7$

$Q_1 = 69.5 + (0.14) 7$

$Q_1 = 69.5 + 0.98 = 70.48$

$Q_2 = Lri + \left(\frac{\frac{2N}{4} - Faa}{F}\right) i$

$Q_2 = 69.5 + \left(\frac{12.5 - 5}{9}\right) 7$

$Q_2 = 69.5 + \left(\frac{7.5}{9}\right) 7$

$Q_2 = 69.5 + (0.83) 7$

$Q_2 = 69.5 + 5.81 = 75.31$

$Q_3 = Lri + \left(\frac{\frac{3N}{4} - Faa}{F}\right) i$

$Q_3 = 76.5 + \left(\frac{18.75 - 14}{9}\right) 7$

$Q_3 = 76.5 + \left(\frac{4.75}{9}\right) 7$

$Q_3 = 76.5 + (0.53) 7$

$Q_3 = 76.5 + 3.71 = 80.21$

8. $D_2 = Lri + \left(\frac{\frac{2N}{10} - Faa}{F}\right) i$

$D_2 = 62.5 + \left(\frac{5 - 2}{3}\right) 7$

$D_2 = 62.5 + \left(\frac{3}{3}\right) 7$

$D_2 = 62.5 + (1) 7$

$D_2 = 62.5 + 7 = 69.5$

$D_6 = Lri + \left(\frac{\frac{6N}{10} - Faa}{F}\right) i$

$D_6 = 76.5 + \left(\frac{15 - 14}{9}\right) 7$

$D_6 = 76.5 + \left(\frac{1}{9}\right) 7$

$D_6 = 76.5 + (0.11) 7$

$D_6 = 76.5 + 0.77 = 77.27$

$$D_9 = L_{r9} + \left(\frac{9N}{10} - f_{aa}\right) i$$

$$D_9 = 76.5 + \left(\frac{22.5 - 14}{9}\right) 7$$

$$D_9 = 76.5 + (0.94)\,7$$

$$D_9 = 76.5 + \left(\frac{66.5}{9}\right) 7$$

$$D_9 = 76.5 + 6.58 = 83.08$$

9. $$P_{15} = L_{r9} + \left(\frac{15N}{100} - f_{aa}\right) i$$

$$P_{15} = 62.5 + \left(\frac{3.75 - 2}{3}\right) 7$$

$$P_{15} = 62.5 + \left(\frac{1.75}{3}\right) 7$$

$$P_{15} = 62.5 + (0.58)\,7$$

$$P_{15} = 62.5 + 4.06 = 66.56$$

$$P_{70} = L_{r9} + \left(\frac{70N}{100} - f_{aa}\right) i$$

$$P_{70} = 76.5 + \left(\frac{17.5 - 14}{9}\right) 7$$

$$P_{70} = 76.5 + \left(\frac{3.5}{9}\right) 7$$

$$P_{70} = 76.5 + (0.39)\,7$$

$$P_{70} = 76.5 + 2.73 = 79.23$$

$$P_{95} = L_{ri} + \left(\frac{95N}{100} - f_{aa}\right) i$$

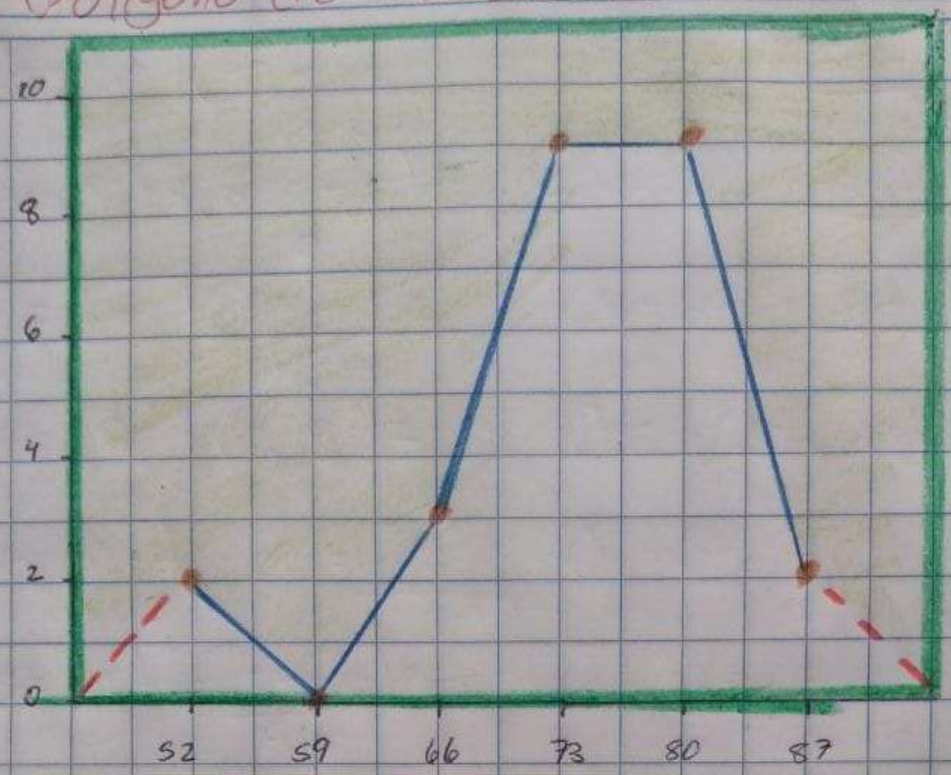
$$P_{95} = 83.5 + \left(\frac{23.75 - 23}{2}\right) 7$$

$$P_{95} = 83.5 + (0.38)\,7$$

$$P_{95} = 83.5 + \left(\frac{0.75}{2}\right) 7$$

$$P_{95} = 83.5 + 2.66 = 86.16$$

Polígono de Frecuencia



Respuestas:

$K = 5.64$
$R = 42$
$I = 7$

$\bar{X} = 74.12$
$Md = 75.37$
$Mo_1 = 76.5$
$Mo_2 = 76.5$

$Q_1 = 70.48$
$Q_2 = 75.37$
$Q_3 = 80.21$

$D_3 = 69.5$
$D_6 = 77.27$
$D_9 = 83.08$

$P_{15} = 66.56$
$P_{30} = 79.23$
$P_{95} = 86.76$