

## Ejercicio 1

- Tabla ordenada

40	40	40	44	45	45	46	47	48	49	49	49
50	50	50	50	50	50	50	50	50	54	54	52
55	55	55	56	56	58	58	59	60	60	60	62
62	63	63	64	65	65	67	68	70	72	78	84

$$\text{Datos} = n = 48$$

Media

$$\bar{X} = 40 \times 3 + 44 + 45 \times 2 + 46 + 47 + 48 + 49 \times 3 + 50 \times 9 + 54 \times 2 + 55 \times 4 + 56 \times 2 + 58 \times 2 + 59 + 60 \times 3 + 62 \times 2 + 63 \times 2 + 64 + 65 \times 2 + 67 + 68 + 70 + 72 + 78 + 84$$

48

$$\bar{X} = 120 + 44 + 90 + 46 + 47 + 48 + 147 + 450 + 108 + 220 + 112 + 116 + 59 + 180 + 124 + 126 + 64 + 130 + 67 + 68 + 70 + 72 + 78 + 84$$

48

$$\bar{x} = \frac{2670}{48} = 55.625 = 55.6$$

Mediana

$$Me = \frac{n}{2} = \frac{48}{2} = 24 \quad \frac{n}{2} + 1 = 24 + 1 = 25$$

Posición 24 y 25

Datos 24 = 55      Datos 25 = 55

$$\frac{55 + 55}{2} = \frac{110}{2} = 55$$

$$Me = 55$$

Moda

9 veces se repite 50

$$Mo = 50$$

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Varianza

$$\sum f_i^2 = 40^2 \times 3 + 44^2 + 45^2 \times 2 + 46^2 + 47^2 + 48^2 + 49^2 \times 3 + 50^2 \times 9 + 54^2 \times 2 + 55^2 \times 4 + 56^2 \times 2 + 58^2 \times 2 + 59^2 + 60^2 \times 3 + 62^2 \times 2 + 63^2 \times 2 + 64^2 + 65^2 \times 2 + 67^2 + 68^2 + 70^2 + 72^2 + 78^2 + 84^2$$

$$\sum f_i^2 = 4800 + 1936 + 4050 + 2116 + 2209 + 2304 + 7203 + 22500 + 5832 + 12100 + 6272 + 6728 + 3981 + 10800 + 7688 + 7938 + 4096 + 8950 + 4489 + 4624 + 4900 + 5184 + 6084 + 7056$$

$$\sum F_i^2 = 152840$$

$$S^2 = \frac{\sum F_i^2}{n-1} - \frac{(\sum F_i)^2}{n^2} = \frac{152840}{47} - \frac{(2670)^2}{48^2} = \frac{152840}{47} - \frac{7128900}{48^2}$$

$$S^2 = \frac{152840}{47} - \frac{148518.75}{47} = \frac{4321.25}{47}$$

$$S^2 = 91.9414 = 91.941$$

Desviación estándar

$$S = \sqrt{91.941} = 9.5886 = 9.59$$

Ejercicio 2

- Tabla de datos ordenados

27	34	35	35	35	35	35	35	35	35	35	35	35
35	35	35	38	40	40	40	44	44	44	44	44	44
44	45	54	55	55	56	56	57	66	66	66	66	67
70	76	76	77	77	78	78	78	78	80	80	80	82
85	86	87	87	88	89	90	99					

Datos n = 56

$$\sum F_i = 27 + 34 + 35 \times 13 + 38 + 40 \times 3 + 44 \times 6 + 45 + 54 + 55 \times 2 + 56 \times 2 + 57 + 60 + 66 \times 2 + 67 + 70 + 76 \times 2 + 77 \times 2 + 78 \times 4 + 80 \times 2 + 82 + 85 + 86 + 87 \times 2 + 88 + 89 + 90 + 99$$

$$\sum F_i^2 = 27^2 + 34^2 + 45^2 + 38^2 + 120^2 + 264^2 + 45^2 + 54^2 + 110^2 + 112^2 + 57^2 + 60^2 + 132^2 + 67^2 + 70^2 + 155^2 + 154^2 + 312^2 + 160^2 + 82^2 + 85^2 + 86^2 + 174^2 + 88^2 + 89^2 + 90^2 + 99^2$$

$$\sum F_i^2 = 3211$$

Scibe

$$\text{Media: } \bar{x} = \frac{\sum F_i}{n} = \frac{3211}{56} = 57.33928 = 57.34 = 57.3$$

Mediana

$$Me = \frac{n}{2} = \frac{56}{2} = 28$$

$$\frac{n}{2} + 1 = \frac{56}{2} + 1 = 28 + 1 = 29$$

Posición 28 y 29

Data 28 = 55      Data 29 = 55

$$\frac{55 + 55}{2} = \frac{110}{2} = 55$$

$$Me = 55$$

Moda

13 veces se repite 35

$$Mo = 35$$

Varianza

$$\begin{aligned} \sum F_i^2 = & 27^2 + 34^2 + 35^2 \times 13 + 38^2 + 40^2 \times 3 + 44^2 \times 6 + 45^2 + 54^2 + 55^2 \times 2 + 56^2 \times 2 \\ & + 57^2 + 60^2 + 66^2 \times 2 + 67^2 + 70^2 + 76^2 \times 2 + 77^2 \times 2 + 78^2 \times 4 + 80^2 \times 2 + 82^2 \\ & + 85^2 + 86^2 + 87^2 \times 2 + 88^2 + 89^2 + 90^2 + 94^2 \end{aligned}$$

$$\begin{aligned} \sum F_i^2 = & 729 + 1156 + 15925 + 1444 + 4800 + 11616 + 2025 + 2916 + 6050 \\ & + 6272 + 3249 + 3600 + 8712 + 4989 + 4900 + 1152 + 11858 + \\ & 24336 + 12800 + 6724 + 7225 + 15138 + 7744 + 7921 + 8100 + 8836 \end{aligned}$$

$$\sum F_i^2 = 207513$$

$$s^2 = \frac{\sum F_i^2 - \frac{(\sum F_i)^2}{n}}{n-1} = \frac{207513 - \frac{(3211)^2}{56}}{56-1} = \frac{207513 - 10310521}{55}$$

$$s^2 = \frac{207513 - 18416.4464}{55} = \frac{23396.5536}{55} = 425.3918 = 425.392$$

$$s^2 = 425.392$$

Desviación estándar

$$s = \sqrt{425.392} = 20.625 = 20.63$$