

COLEGIO CIENTIFICO MONTESSORI, SOLOLÁ

BACHILLERATO EN CIENCIAS Y LETRAS CON ORIENTACIÓN EN COMPUTACIÓN

ESTADISTICA DESCRIPTIVA

MEDIDAS DE TENDENCIA CENTRAL Y DE DISPERSION PARA DATOS AGRUPADO

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| Edad      | Marca de clas | Frecuencia absoluta | Frecuencia acumulada |
|-----------|---------------|---------------------|----------------------|
| [10 - 19) | 14.5          | 5                   | 5                    |
| [19 - 28) | 23.5          | 11                  | 16                   |
| [28 - 37) | 32.5          | 8                   | 24                   |
| [37 - 46) | 41.5          | 5                   | 29                   |
| [46 - 55) | 50.5          | 8                   | 37                   |
| [55 - 64) | 59.5          | 6                   | 43                   |
| [64 - 73) | 68.5          | 7                   | 50                   |
|           |               | 50                  |                      |

Con los datos anteriores encuentra

Media

Mediana

Moda

Rango

Varianza

Desviación estandar

▪ **Media (40.78)**

| Intervalos |          | Marca de clase<br>“xi” | Frecuencia Absoluta<br>“fi”                | Frecuencia Acumulada<br>“Fi” |
|------------|----------|------------------------|--------------------------------------------|------------------------------|
| Inferior   | Superior |                        |                                            |                              |
| 10         | 19       | 14.5                   | 5                                          | 5                            |
| 19         | 28       | 23.5                   | 11                                         | 16                           |
| 28         | 37       | 32.5                   | 8                                          | 24                           |
| 37         | 46       | 41.5                   | 5                                          | 29                           |
| 46         | 55       | 50.5                   | 8                                          | 37                           |
| 55         | 64       | 59.5                   | 6                                          | 43                           |
| 64         | 73       | 68.5                   | 7                                          | 50                           |
|            |          |                        | =50                                        |                              |
|            |          | “xi*fi”                | Total de “xi*fi”                           | 2,039                        |
|            |          | 72.5                   |                                            |                              |
|            |          | 258.5                  |                                            |                              |
|            |          | 260                    |                                            |                              |
|            |          | 207.5                  |                                            |                              |
|            |          | 404                    |                                            |                              |
|            |          | 357                    |                                            |                              |
|            |          | 479.5                  |                                            | 0                            |
|            |          |                        | Total de “xi*fi” / Total de “fi” 50= 40.78 |                              |
|            |          |                        | <b>Media (40.78)</b>                       |                              |

▪ **Mediana (38.8)**

| Intervalos |          | Marca de clase<br>"xi" | Frecuencia Absoluta<br>"fi" | Frecuencia Acumulada<br>"Fi" |
|------------|----------|------------------------|-----------------------------|------------------------------|
| Inferior   | Superior |                        |                             |                              |
| 10         | 19       | 14.5                   | 5                           | 5                            |
| 19         | 28       | 23.5                   | 11                          | 16                           |
| 28         | 37       | 32.5                   | 8                           | 24                           |
| 37         | 46       | 41.5                   | 5                           | 29                           |
| 46         | 55       | 50.5                   | 8                           | 37                           |
| 55         | 64       | 59.5                   | 6                           | 43                           |
| 64         | 73       | 68.5                   | 7                           | 50                           |

$$n = 50/2 = 50/2 = 25$$

$$M_c = 37 + \frac{29 - 25}{5} \times 9$$

$$M_c = 37 + \frac{4}{5} \times 9$$

$$M_c = 37 + 0.8 \times 9$$

$$M_c = 37 + 7.2$$

$$M_c = 38.8 //$$

▪ **Moda (25)**

| Intervalos |          | Marca de clase<br>"xi" | Frecuencia Absoluta<br>"fi" | Frecuencia Acumulada<br>"Fi" |
|------------|----------|------------------------|-----------------------------|------------------------------|
| Inferior   | Superior |                        |                             |                              |
| 10         | 19       | 14.5                   | 5                           | 5                            |
| 19         | 28       | 23.5                   | 11                          | 16                           |
| 28         | 37       | 32.5                   | 8                           | 24                           |
| 37         | 46       | 41.5                   | 5                           | 29                           |
| 46         | 55       | 50.5                   | 8                           | 37                           |
| 55         | 64       | 59.5                   | 6                           | 43                           |
| 64         | 73       | 68.5                   | 7                           | 50                           |

$$M_0 = 19 + \frac{11-5}{(11-5)+(11-8)} \times 9$$

$$M_0 = 19 + \frac{6}{6+3} \times 9$$

$$M_0 = 19 + \frac{6}{9} \times 9$$

$$M_0 = 19 + \frac{54}{9}$$

$$M_0 = 19 + 6$$

$$M_0 = 25 //$$

▪ **Rango (63)**

| Intervalos |          | Marca de clase<br>"xi" | Frecuencia Absoluta<br>"fi" | Frecuencia Acumulada<br>"Fi" |
|------------|----------|------------------------|-----------------------------|------------------------------|
| Inferior   | Superior |                        |                             |                              |
| 10         | 19       | 14.5                   | 5                           | 5                            |
| 19         | 28       | 23.5                   | 11                          | 16                           |
| 28         | 37       | 32.5                   | 8                           | 24                           |
| 37         | 46       | 41.5                   | 5                           | 29                           |
| 46         | 55       | 50.5                   | 8                           | 37                           |
| 55         | 64       | 59.5                   | 6                           | 43                           |
| 64         | 73       | 68.5                   | 7                           | 50                           |

$$\text{Rango} = \text{limite superior} - \text{limite inferior}$$

$$\text{Rango} = 73 - 10$$

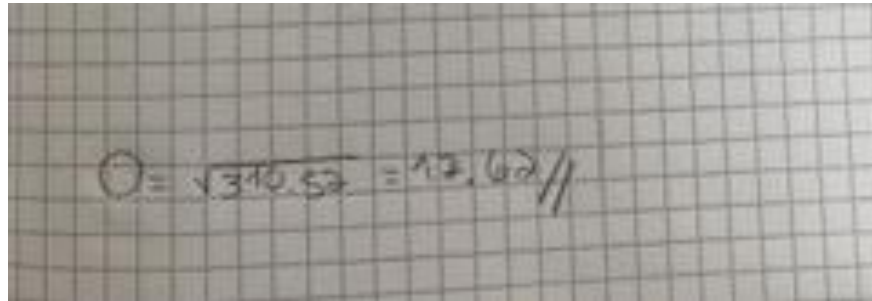
$$\text{Rango} = 63//$$

▪ **Varianza (310.52)**

| Xi-u o Media | (Xi-u) 2 | fi (Xi-u)2 |
|--------------|----------|------------|
| -26.28       | 690.64   | 3453.192   |
| -17.28       | 298.60   | 3284.5824  |
| -8.28        | 68.56    | 548.4672   |
| 0.72         | 0.52     | 2.592      |
| 9.72         | 94.48    | 755.8272   |
| 18.72        | 350.44   | 2102.6304  |
| 27.72        | 768.40   | 5378.7888  |
|              |          | =15526.08  |

$$S^2 = \frac{\sum f_i (X_i - u)^2}{n} = \frac{15526.08}{50} = 310.52//$$

- Desviación de Estándar (17.62)



A photograph of a piece of graph paper with a handwritten calculation. The calculation is:  $\sigma = \sqrt{310.52} = 17.62 //$