**Nombre de la alumna:** Sarina López González.

**Nombre del profesor:** Jorge Enrique Albores.

**Nombre del trabajo:** Tabla de frecuencia.

**Materia:** Estadística descriptiva en nutrición.

**Grado:** 3° Cuatrimestre

Comitán de Domínguez Chiapas a 26 de Julio de 2021.

# Ejercicio 1

Sarina López González

| | | | | |
|---|---|---|---|---|
| 50 | 30 | 50 | 21 | 40 |
| 30 | 49 | 25 | 50 | 47 |
| 29 | 46 | 34 | 48 | 25 |
| 44 | 33 | 49 | 40 | 33 |
| 31 | 39 | 43 | 43 | 35 |
| 28 | 23 | 44 | 44 | 21 |

## Resultado ↓

| Intervalo | Frecuencia | % de frecuencia | Frecuencia Acumulada | % de frecuencia Acumulada | Marca de clase | Frecuencia por marca de clase | Marca de clase al cuadrado | Frecuencia por marca de clase al cuadrado |
|---|---|---|---|---|---|---|---|---|
| $cc$ | $f_i$ | $\%f_i$ | $f_{ia}$ | $\%f_{ia}$ | $\overline{x_i}$ | $f_i\overline{x_i}$ | $\overline{x_i}^2$ | $F_i x_i^2$ |
| 21 – 26 | 5 | 16.66 % | 5 | 16.66 % | 23.5 | 117.5 | 552.25 | 2761.25 |
| 27 – 32 | 5 | 16.66 % | 10 | 33.33 % | 29.5 | 147.5 | 870.25 | 4351.25 |
| 33 – 38 | 4 | 13.33 % | 14 | 46.66 % | 35.5 | 142 | 1260.25 | 5041 |
| 39 – 44 | 8 | 26.66 % | 22 | 73.33 % | 41.5 | 332 | 1722.25 | 13778 |
| 45 – 50 | 8 | 26.66 % | 30 | 100 % | 47.5 | 380 | 2256.25 | 18050 |
| Sumatoria = | 30 | 99.97 | | | | 1,119 | | 43,981.5 |

# PROCEDIMIENTO EJERCICIO 1 — Sarina López González

| | fi | %fi |
|---|---|---|
| Rango = 50 − 21 = 29 <br> Amplitud = $\dfrac{(50-21)+1}{5} = \dfrac{30}{5} = 6$ ai <br><br> 21 + 5 = 26 + 1 = 27 <br> 27 + 5 = 32 + 1 = 33 <br> 33 + 5 = 38 + 1 = 39 <br> 39 + 5 = 44 + 1 = 45 <br> 45 + 5 = 50 | 21 − 26 = |||||  = 5 <br> 27 − 32 = |||||  = 5 <br> 33 − 38 = ||||  = 4 <br> 39 − 44 = ||||||||  = 8 <br> 45 − 50 = ||||||||  = 8 <br> _____ 30 | 5 ÷ 30 × 100 = 16.66% <br> 5 ÷ 30 × 100 = 16.66% <br> 4 ÷ 30 × 100 = 13.33% <br> 8 ÷ 30 × 100 = 26.66% <br> 8 ÷ 30 × 100 = 26.66% |

| fia | %fia | $\overline{X_i}$ |
|---|---|---|
| 5 <br> 5 + 5 = 10 <br> 10 + 4 = 14 <br> 14 + 8 = 22 <br> 22 + 8 = [30] | 5 ÷ 30 × 100 = 16.66% <br> 10 ÷ 30 × 100 = 33.33% <br> 14 ÷ 30 × 100 = 46.66% <br> 22 ÷ 30 × 100 = 73.33% <br> 30 ÷ 30 × 100 = 100% | 21 + 26 ÷ 2 = 23.5 <br> 27 + 32 ÷ 2 = 29.5 <br> 33 + 38 ÷ 2 = 35.5 <br> 39 + 44 ÷ 2 = 41.5 <br> 45 + 50 ÷ 2 = 47.5 |

| fixi | $\overline{X}^2$ | Fixi$^2$ |
|---|---|---|
| 5 × 23.5 = 117.5 <br> 5 × 29.5 = 147.5 <br> 4 × 35.5 = 142 <br> 8 × 41.5 = 332 <br> 8 × 47.5 = 380 <br> _____ 1,119 | $23.5^2 = 552.25$ <br> $29.5^2 = 870.25$ <br> $35.5^2 = 1,260.25$ <br> $41.5^2 = 1,722.25$ <br> $47.5^2 = 2,256.25$ | 5 × 552.25 = 2,761.25 <br> 5 × 870.25 = 4,351.25 <br> 4 × 1,260.25 = 5,041 <br> 8 × 1,722.25 = 13,778 <br> 8 × 2,256.25 = 18,050 <br> _____ 43,981.5 |

# Ejercicio 1

## -Media

$$\bar{X} = \frac{\Sigma f_i \bar{x}_i}{n} \qquad \bar{X} = \frac{1,119}{30} = \qquad \bar{X} = 37.3$$

## -Mediana

$$Me = Li + \frac{\frac{n}{2} - fia - 1}{fi} \cdot ai$$

$$Me = 39 + \left[\frac{\left(\frac{30}{2}\right) - 14}{8}\right] 6 \qquad Me = 39.75$$

$$Me = 39 + \left[\frac{15 - 14}{8}\right] 6$$

$$Me = 39 + \left[\frac{1}{8}\right] 6$$

$$Me = 39 + [0.125] 6 = 39 + 0.75$$

## -Moda

$$Mo = Li + \frac{fi - fi - 1}{(fi - fi - 1) + (fi - fi + 1)} \cdot ai$$

$$\begin{aligned} \bar{x}i &= 41.5 \\ \bar{x}i &= 47.5 \end{aligned} = 89 \div 2 = Mo = 44.5$$

## -Varianza

$$S^2 = \frac{\Sigma f_i \bar{x}_i^2 - \frac{(\Sigma f_i x_i)^2}{n}}{n-1}$$

$$S^2 = \frac{43,981.5 - \frac{(1,119)^2}{30}}{29}$$

$$S^2 = \frac{43,981.5 - 41,738.7}{29}$$

$$S^2 = \frac{2,242.8}{29}$$

$$S^2 = \sqrt{77.33}$$

## -Desviación Estandar

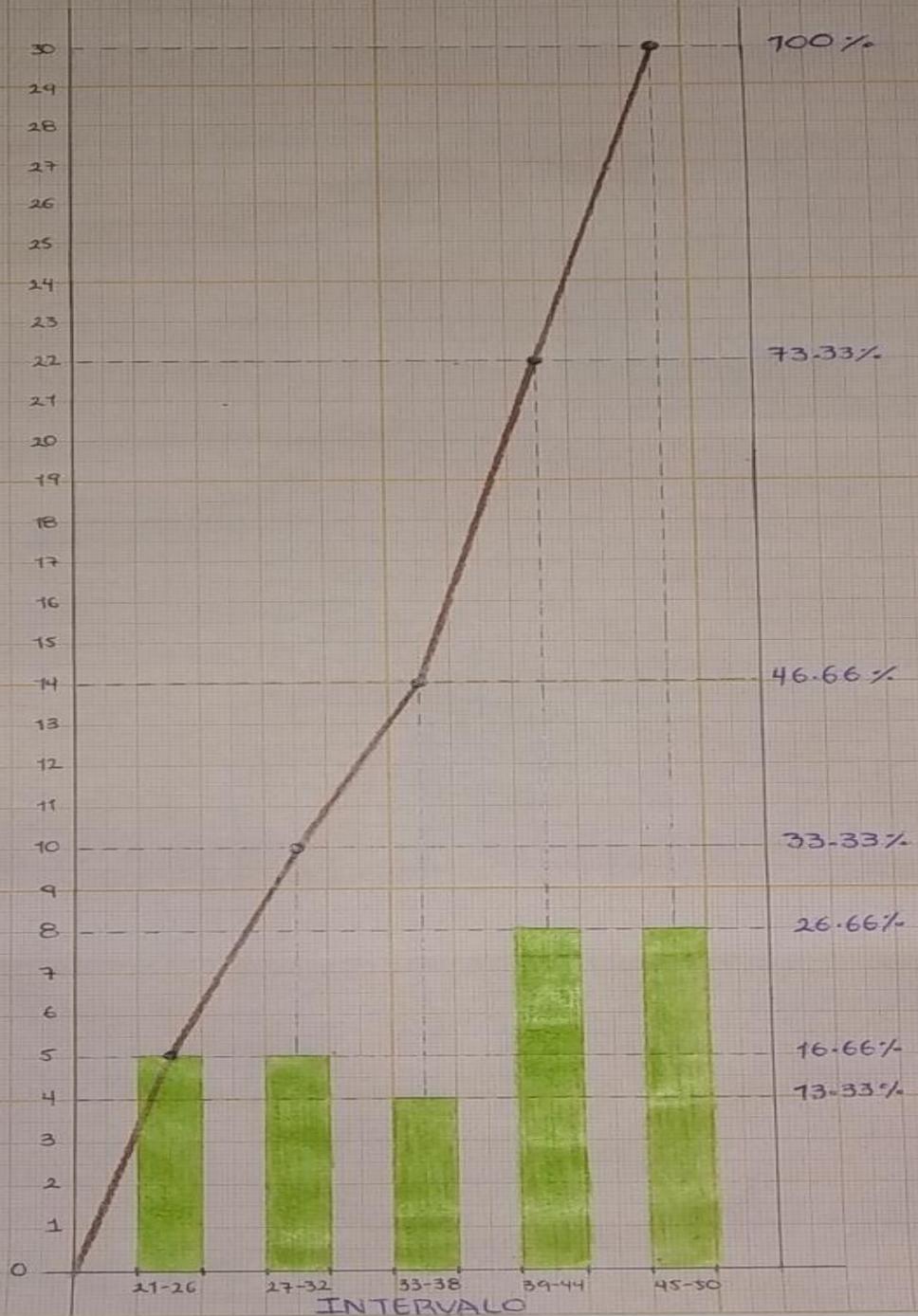$$S = 8.79$$

Ejercicio 1 — Sarina López González

INTERVALO

# Ejercicio 2

Sarina López González

| 33 | 40 | 66 | 56 | 44 |
|----|----|----|----|----|
| 70 | 42 | 73 | 49 | 33 |
| 78 | 56 | 79 | 68 | 54 |
| 55 | 67 | 42 | 53 | 58 |
| 39 | 80 | 41 | 64 | 64 |
| 56 | 75 | 45 | 41 | 80 |

## Resultado ↓

| Intervalo | Frecuencia | % de frecuencia | Frecuencia Acumulada | % de frecuencia Acumulada | Marca de Clase | Frecuencia por marca de clase | Marca de clase al cuadrado | Frecuencia por marca de clase al cuadrado |
|-----------|-----------|-----------------|---------------------|---------------------------|----------------|------------------------------|---------------------------|--------------------------------------------|
| $cc$ | $f_i$ | $\%f_i$ | $f_{ia}$ | $\%f_{ia}$ | $x_i$ | $f_i x_i$ | $\overline{x_i}^2$ | $F_i x_i^2$ |
| 33–38 | 2 | 6.66% | 2 | 6.66% | 35.5 | 71 | 1260.25 | 2,520.5 |
| 39–44 | 7 | 23.33% | 9 | 30% | 41.5 | 290.5 | 1722.25 | 1,2055.75 |
| 45–50 | 2 | 6.66% | 11 | 36.66% | 47.5 | 95 | 2256.25 | 4,512.5 |
| 51–56 | 6 | 20% | 17 | 56.66% | 53.5 | 321 | 2862.25 | 17,173.5 |
| 57–62 | 1 | 3.33% | 18 | 60% | 59.5 | 59.5 | 3540.25 | 3,540.25 |
| 63–68 | 5 | 16.66% | 23 | 76.66% | 65.5 | 327.5 | 4290.25 | 21,451.25 |
| 69–74 | 2 | 6.66% | 25 | 83.33% | 71.5 | 143 | 5112.25 | 10,224.5 |
| 75–80 | 5 | 16.66% | 30 | 100% | 77.5 | 387.5 | 6006.25 | 30,031.25 |
| Sumatoria= | 30 | 99.96 | | | | 7,695 | | 101,509.5 |

# PROCEDIMIENTO EJERCICIO 2

Sarina López González

|  |  |  |
|---|---|---|
| Rango = 80 − 33 = 47 <br><br> Amplitud: $\frac{(80-33)+1}{8} = \frac{48}{8} = 6$ ai <br><br> 33 + 5 = 38 + 1 = 39 <br> 39 + 5 = 44 + 1 = 45 <br> 45 + 5 = 50 + 1 = 51 <br> 51 + 5 = 56 + 1 = 57 <br> 57 + 5 = 62 + 1 = 63 <br> 63 + 5 = 68 + 1 = 69 <br> 69 + 5 = 74 + 1 = 75 <br> 75 + 5 = 80 | **fi** <br><br> 33 − 38 = 11 = 2 <br> 39 − 44 = 1111111 = 7 <br> 45 − 50 = 11 = 2 <br> 51 − 56 = 111111 = 6 <br> 57 − 62 = 1 = 1 <br> 63 − 68 = 11111 = 5 <br> 69 − 74 = 11 = 2 <br> 75 − 80 = 11111 = 5 <br> ___ <br> 30 | **% fi** <br><br> 2 ÷ 30 × 100 = 6.66% <br> 7 ÷ 30 × 100 = 23.33% <br> 2 ÷ 30 × 100 = 6.66% <br> 6 ÷ 30 × 100 = 20% <br> 1 ÷ 30 × 100 = 3.33% <br> 5 ÷ 30 × 100 = 16.66% <br> 2 ÷ 30 × 100 = 6.66% <br> 5 ÷ 30 × 100 = 16.66% |
| **fia** <br><br> 2 <br> 2 + 7 = 9 <br> 9 + 2 = 11 <br> 11 + 6 = 17 <br> 17 + 1 = 18 <br> 18 + 5 = 23 <br> 23 + 2 = 25 <br> 25 + 5 = 30 | **% fia** <br><br> 2 ÷ 30 × 100 = 6.66% <br> 9 ÷ 30 × 100 = 30% <br> 11 ÷ 30 × 100 = 36.66% <br> 17 ÷ 30 × 100 = 56.66% <br> 18 ÷ 30 × 100 = 60% <br> 23 ÷ 30 × 100 = 76.66% <br> 25 ÷ 30 × 100 = 83.33% <br> 30 ÷ 30 × 100 = 100% | **$\overline{x}\,i$** <br><br> 33 + 38 ÷ 2 = 35.5 <br> 39 + 44 ÷ 2 = 41.5 <br> 45 + 50 ÷ 2 = 47.5 <br> 51 + 56 ÷ 2 = 53.5 <br> 57 + 62 ÷ 2 = 59.5 <br> 63 + 68 ÷ 2 = 65.5 <br> 69 + 74 ÷ 2 = 71.5 <br> 75 + 80 ÷ 2 = 77.5 |
| **fixi** <br><br> 2 × 35.5 = 71 <br> 7 × 41.5 = 290.5 <br> 2 × 47.5 = 95 <br> 6 × 53.5 = 321 <br> 1 × 59.5 = 59.5 <br> 5 × 65.5 = 327.5 <br> 2 × 71.5 = 143 <br> 5 × 77.5 = 387.5 <br> ___ <br> 1,695 | **$\overline{x}^2$** <br><br> $35.5^2 = 1,260.25$ <br> $41.5^2 = 1,722.25$ <br> $47.5^2 = 2,256.25$ <br> $53.5^2 = 2,862.25$ <br> $59.5^2 = 3,540.25$ <br> $65.5^2 = 4,290.25$ <br> $71.5^2 = 5,112.25$ <br> $77.5^2 = 6,006.25$ | **Fixi²** <br><br> 2 × 1,260.25 = 2,520.5 <br> 7 × 1,722.25 = 1,2055.75 <br> 2 × 2,256.25 = 4,512.5 <br> 6 × 2,862.25 = 17,173.5 <br> 1 × 3540.25 = 3,540.25 <br> 5 × 4,290.25 = 21,451.25 <br> 2 × 5,112.25 = 10,224.5 <br> 5 × 6,006.25 = 30,031.25 <br> ___ <br> 101,509.5 |

# Ejercicio 2

## - Media

$$\bar{X} = \frac{\sum f_i \bar{x}_i}{n} \qquad \bar{X} = \frac{1,695}{30} = \bar{X} = 56.5$$

## - Mediana

$$Me = Li + \frac{\frac{n}{2} - f_{ia-1}}{f_i} \cdot a_i$$

$$Me = 51 + \frac{\frac{30}{2} - 11}{6} \times 6$$

$$Me = 51 + \frac{15 - 11}{6} \times 6$$

$$Me = 51 + \frac{4}{6} \times 6$$

$$Me = 55$$

## - Moda

$$MO = Li + \frac{f_i - f_{i-1}}{(f_i - f_{i-1}) + (f_i - f_{i+1})} \cdot a_i$$

$$MO = 39 + \frac{7 - 2}{(7-2)+(7-2)} \times 6 \qquad MO = 39 + [0.5] 6 =$$

$$MO = 39 + \frac{5}{(5)+(5)} \qquad MO = 42$$

$$MO = 39 + \left[\frac{5}{10}\right] 6$$

## - Varianza

$$S^2 = \frac{\sum f_i \bar{x}_i^2 - \frac{(\sum f_i x_i)^2}{n}}{n-1}$$

$$S^2 = \frac{101509.5 - \left(\frac{1695}{30}\right)^2}{29}$$

$$S^2 = \frac{101509.5 - 95767.5}{29}$$

$$S^2 = \frac{5,742}{29}$$

$$S^2 = \sqrt{198}$$

## - Desviación Estandar

$$S = 14.07$$

Ejercicio 2 — Sarina López González