

**Nombre de alumno: Ayla Ebed  
Zacarías Bartolón**

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

**Nombre del trabajo: Actividad**

**Materia: Estadística**

PASIÓN POR EDUCAR

**Grado: 3° cuatrimestre**

**Grupo:**

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

### Ejercicio 1

## Ejercicio 1

Intervalo	fi	% fi	fja	% fja	$\bar{x}$	$f_i \bar{x}$	$\bar{x}^2$	$f_i \bar{x}^2$
21-26	5	16.6	5	16.66%	23.5	117.5	552.25	2761.25
27-32	5	16.6	10	33.33%	29.5	147.5	870.25	4351.25
33-38	4	13.3	14	46.66%	35.5	142	1260.25	5041
39-44	8	26.6	22	73.3%	41.5	332	1722.25	13778
45-50	8	26.6	30	100%	47.5	380	2256.25	18050

**Rango**  
 $d = \frac{(50-21)+1}{5} = \frac{30}{5} = 6$

**Intervalo**  
 21-26  
 27-32  
 33-38  
 39-44  
 45-50

**fi frecuencia**  
 21-26 ||||| 5  
 27-32 ||||| 5  
 33-38 |||| 4  
 39-44 ||||| ||| 8  
 45-50 ||||| ||| 8

**Porcentaje de frecuencia**  
 $5 \div 30 \times 100 = 16.6$   
 $5 \div 30 \times 100 = 16.6$   
 $4 \div 30 \times 100 = 13.3$   
 $8 \div 30 \times 100 = 26.6$   
 $8 \div 30 \times 100 = 26.6$

**Frecuencia acumulada**  
 $5$   
 $5 + 5 = 10$   
 $10 + 4 = 14$   
 $14 + 8 = 22$   
 $22 + 8 = 30$

**Marca de clase**  
 $\frac{21+26}{2} = \frac{47}{2} = 23.5$   
 $\frac{27+32}{2} = \frac{59}{2} = 29.5$   
 $\frac{33+38}{2} = \frac{71}{2} = 35.5$   
 $\frac{39+44}{2} = \frac{83}{2} = 41.5$   
 $\frac{45+50}{2} = \frac{95}{2} = 47.5$

**Porcentaje de frecuencia acumulada**  
 $5 \div 30 \times 100 = 16.66\%$   
 $10 \div 30 \times 100 = 33.33\%$   
 $14 \div 30 \times 100 = 46.6\%$   
 $22 \div 30 \times 100 = 73.3\%$   
 $30 \div 30 \times 100 = 100\%$

**Frecuencia por marca de clase**  
 $f_i \bar{x}$   
 $5 \times 23.5 = 117.5$   
 $5 \times 29.5 = 147.5$   
 $4 \times 35.5 = 142$   
 $8 \times 41.5 = 332$   
 $8 \times 47.5 = 380$

**Marca de clase  $\bar{x}^2$**   
 $(23.5)^2 = 552.25$   
 $(29.5)^2 = 870.25$   
 $(35.5)^2 = 1260.25$   
 $(41.5)^2 = 1722.25$   
 $(47.5)^2 = 2256.25$

**Frecuencia por marca de clase**  
 $5 \times 552.25 = 2761.25$   
 $5 \times 870.25 = 4351.25$   
 $4 \times 1260.25 = 5041$   
 $8 \times 1722.25 = 13778$   
 $8 \times 2256.25 = 18050$

$\sum f_i x_i = 1119$   
 $(\sum f_i \bar{x}^2) = 43981$

**Media:**  $x = \frac{1119}{30} = 37.3$

**Mediana:**  $mc = \frac{33 + \frac{30 - 10}{2} \times 5}{4} = \frac{33 + 15}{4} = 39.25$

**Moda:**  $mo = \frac{41.5 + 47.5}{2} = \frac{89}{2} = 44.5$

**Varianza:**  $s^2 = \frac{43981 - \frac{(1119)^2}{30}}{30 - 1}$   
 $s^2 = \frac{43981 - 41738.7}{29} = \frac{2242.3}{29} = 77.32$

**Desviación estándar:**  $s = \sqrt{77.32} = 8.79$

## Ejercicio 2

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

## Ejercicio 2

Intervalo	fi	% fi	fia	% fia	$\bar{x}$	fi $\bar{x}$	$\bar{x}^2$	fi $\bar{x}^2$
33-38	2	6.66	2	6.66%	35.5	71	1260.2	2520.4
39-44	7	23.3	9	30%	41.5	290.5	1722.2	12055.4
45-50	2	6.66	11	36.66%	47.5	95	2256.2	4512.4
51-56	6	20	17	56.66%	53.5	321	2862.2	17173.2
57-62	1	3.33	18	60%	59.5	59.5	3540.2	3540.2
63-68	5	16.66	23	76.66%	65.5	327.5	4290.2	21451
69-74	2	6.66	25	83.33%	71.5	143	5112.2	10224.4
75-80	5	16.66	30	100%	77.5	387.5	6006.2	30031

Rango

$$a = \frac{(80-33)}{8} + 1 = \frac{48}{8} + 1 = 6 + 1 = 7$$

Intervalo

33-38  
39-44  
45-50  
51-56  
57-62  
63-68  
69-74  
75-80

fi frecuencia

33-38 || 2  
39-44 || || || || || || || 7  
45-50 || 2  
51-56 || || || || || 6  
57-62 | 1  
63-68 || || || || 5  
69-74 || 2  
75-80 || || || || 5

Porcentaje de frecuencia

$2 \div 30 \times 100 = 6.66$   
 $7 \div 30 \times 100 = 23.33$   
 $2 \div 30 \times 100 = 6.66$   
 $6 \div 30 \times 100 = 20$   
 $1 \div 30 \times 100 = 3.33$   
 $5 \div 30 \times 100 = 16.66$   
 $2 \div 30 \times 100 = 6.66$   
 $5 \div 30 \times 100 = 16.66$

Frecuencia acumulada

2  
2+7=9  
9+2=11  
11+6=17  
17+1=18  
18+5=23  
23+2=25  
25+5=30

Porcentaje de frecuencia acumulada

$2 \div 30 \times 100 = 6.66$   
 $9 \div 30 \times 100 = 30$   
 $11 \div 30 \times 100 = 36.66$   
 $17 \div 30 \times 100 = 56.66$   
 $18 \div 30 \times 100 = 60$   
 $23 \div 30 \times 100 = 76.66$   
 $25 \div 30 \times 100 = 83.33$   
 $30 \div 30 \times 100 = 100$

Marca de clase  $\bar{x}$

$\frac{33+38}{2} = \frac{71}{2} = 35.5$   
 $\frac{39+44}{2} = \frac{83}{2} = 41.5$   
 $\frac{45+50}{2} = \frac{95}{2} = 47.5$   
 $\frac{51+56}{2} = \frac{107}{2} = 53.5$   
 $\frac{57+62}{2} = \frac{119}{2} = 59.5$   
 $\frac{63+68}{2} = \frac{131}{2} = 65.5$   
 $\frac{69+74}{2} = \frac{143}{2} = 71.5$   
 $\frac{75+80}{2} = \frac{155}{2} = 77.5$

Frecuencia por marca de clase

$$\begin{aligned}2 \times 35.5 &= 71 \\7 \times 41.5 &= 290.5 \\2 \times 47.5 &= 95 \\6 \times 53.5 &= 321 \\1 \times 59.5 &= 59.5 \\5 \times 65.5 &= 327.5 \\2 \times 71.5 &= 143 \\5 \times 77.5 &= 387.5\end{aligned}$$

Marca de clase  $^2 \times f^2$

$$\begin{aligned}(35.5)^2 &= 1260.2 \\(41.5)^2 &= 1722.2 \\(47.5)^2 &= 2256.2 \\(53.5)^2 &= 2862.2 \\(59.5)^2 &= 3540.2 \\(65.5)^2 &= 4290.2 \\(71.5)^2 &= 5112.2 \\(77.5)^2 &= 6006.2\end{aligned}$$

Frecuencia por marca de clase

$$\begin{aligned}2 \times 1260.2 &= 2520.4 \\7 \times 1722.2 &= 12055.4 \\2 \times 2256.2 &= 4512.4 \\6 \times 2862.2 &= 17173.2 \\1 \times 3540.2 &= 3540.2 \\5 \times 4290.2 &= 21451 \\2 \times 5112.2 &= 10224.4 \\5 \times 6006.2 &= 30031\end{aligned}$$

$$\sum f_i x_i = 1695.1$$

$$(\sum f_i x_i)^2 = 101508$$

$$\text{Media: } x = \frac{1695.1}{30} = 56.5$$

$$\text{Mediana: } 51 + \frac{15 - 11}{6} \times 6 = 55$$

$$\text{Moda: } 39 + \frac{7 - 2}{(7 - 2) + (7 - 2)} \times 6 = 42$$

$$7 - 2 = 5 \div ((7 - 2) + (7 - 2)) = 0.5 \times 6 = 3 + 39 = 42$$

$$\text{Varianza } S^2 = \frac{101508 - \frac{(1695.1)^2}{30}}{30 - 1} = \frac{101508 - 95778.8}{29}$$

$$\frac{5729.2}{2} = 197.5$$

Desviación estándar

$$S = \sqrt{197.5}$$

$$S = 14.05$$