

## Nombre: Datos no agrupados

Se realiza una encuesta sobre el tiempo que les lleva a los trabajadores llegar a la empresa, el objetivo es mejorar el horario laboral de manera general. Los datos recaudados fueron los siguientes:

20, 25, 13, 12, 45, 75, 8, 6, 20, 25,  
20, 32, 16, 25, 12, 6, 5, 25, 40,  
35, 45, 15, 15, 12, 8, 16, 25, 20, 35,  
5, 8, 20, 25, 13, 12, 45, 75, 8, 6,  
20, 25, 20, 32, 16, 25, 12, 6, 5,  
25, 40, 35, 45, 15, 15, 12.

1. Determina la media, mediana y moda.
2. Determina el conjunto de la población al 30%, 55% y 75% (tema de cuantiles).
3. Calcula la varianza y la desviación estándar.
4. Construye una tabla de frecuencias respetando rango, intervalos, amplitud, así como las diferentes frecuencias (absoluta, relativa, acumulada y porcentajes).

~~5~~ - ~~5~~ - ~~5~~ - ~~6~~ - ~~6~~ - ~~6~~ - ~~6~~ - ~~8~~ - ~~8~~ - ~~8~~ - ~~8~~ - ~~12~~ - ~~12~~  
X<sub>1</sub> X<sub>2</sub> X<sub>3</sub> X<sub>4</sub> X<sub>5</sub> X<sub>6</sub> X<sub>7</sub> X<sub>8</sub> X<sub>9</sub> X<sub>10</sub> X<sub>11</sub> X<sub>12</sub> X<sub>13</sub>

~~12~~ - ~~12~~ - ~~12~~ - ~~12~~ - ~~13~~ - ~~13~~ - ~~15~~ - ~~15~~ - ~~15~~  
X<sub>14</sub> X<sub>15</sub> X<sub>16</sub> X<sub>17</sub> X<sub>18</sub> X<sub>19</sub> X<sub>20</sub> X<sub>21</sub> X<sub>22</sub>

~~15~~ - ~~16~~ - ~~16~~ - ~~16~~ - ~~20~~ - ~~20~~ - ~~20~~ - ~~20~~  
X<sub>23</sub> X<sub>24</sub> X<sub>25</sub> X<sub>26</sub> X<sub>27</sub> X<sub>28</sub> X<sub>29</sub> X<sub>30</sub>

~~20~~ - ~~20~~ - ~~20~~ - ~~25~~ - ~~25~~ - ~~25~~ - ~~25~~ - ~~25~~  
X<sub>31</sub> X<sub>32</sub> X<sub>33</sub> X<sub>34</sub> X<sub>35</sub> X<sub>36</sub> X<sub>37</sub> X<sub>38</sub>

~~25~~ - ~~25~~ - ~~25~~ - ~~25~~ - ~~32~~ - ~~32~~ - ~~35~~  
X<sub>39</sub> X<sub>40</sub> X<sub>41</sub> X<sub>42</sub> X<sub>43</sub> X<sub>44</sub> X<sub>45</sub>

~~35~~ - ~~35~~ - ~~40~~ - ~~40~~ - ~~45~~ - ~~45~~ - ~~45~~  
X<sub>46</sub> X<sub>47</sub> X<sub>48</sub> X<sub>49</sub> X<sub>50</sub> X<sub>51</sub> X<sub>52</sub>

= 56

~~45~~ - ~~45~~ - ~~75~~ - ~~75~~ = 1266  
X<sub>53</sub> X<sub>54</sub> X<sub>55</sub> X<sub>56</sub>

Media.  $\frac{1266}{56} = 22.60$

$\bar{X} = 22.60$

Mediana.  $20 + 20 = \frac{40}{2} = 20$

Moda. ~~25~~



② 30 o/o 55 o/o 75 o/o

$$Q_k = \frac{kn}{4}$$

$$Q_2 = \frac{2 \cdot 56}{4} = \frac{112}{4} = \underline{28} = \text{Posición } \mathbf{20}$$

$$Q_1 = \frac{1 \cdot 56}{4} = \underline{14} = \text{Posición } \mathbf{12}$$

$$Q_3 = \frac{3 \cdot 56}{4} = \underline{42} = \text{Posición } \mathbf{25}$$

③ Varianza y desviación estándar

$$\bar{X} = 22.60$$

$$\sigma^2 = \frac{(5 - 22.60)^2 + (5 - 22.60)^2 + \dots}{56}$$

$$\begin{aligned} \sigma^2 = & 309.76 + 309.76 + 309.76 + \dots \\ & 278.56 + 278.56 + 278.56 + \dots \\ & 278.56 + 213.16 + 213.16 + \dots \\ & 213.16 + 213.16 + 112.36 + \dots \\ & 112.36 + 112.36 + 112.36 + \dots \\ & 112.36 + 112.36 + 92.16 + \dots \\ & 92.16 + 57.76 + 57.76 + \dots \end{aligned}$$

57.76 + 57.76 + 93.56 + 4.  
43.56 + 6.76 + 6.76 + 6.76  
6.76 + 6.76 + 6.76 + 6.76 +  
5.76 + 5.76 + 5.76 + 5.76 +  
5.76 + 5.76 + 5.76 + 5.76 +  
5.76 + 88.36 + 88.36 +  
153.76 + 153.76 + 153.76 +  
302.76 + 302.76 + 501.76  
+ 501.76 + 501.76 + 501.76 +  
501.76 + 2; 795.76