$X$ = CANTIDAD EMISIONES $CO_2$ POR VEHÍCULO (g/Km)

$n = 100$ vehículos

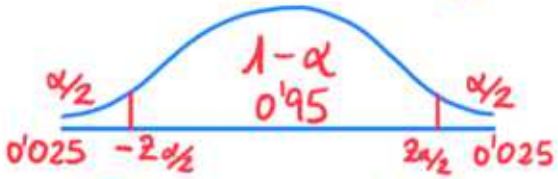
$\bar{X} = 150 \quad \sigma = 25$

a) $I.C._{95\%} = \left[\bar{X} \pm z_{\alpha/2} \frac{\sigma}{\sqrt{n}}\right] = \left[150 \pm 1'96 \frac{25}{\sqrt{100}}\right] =$

$= [145'1 ; 154'9]$

El intervalo de confianza al 95% para la media de emisiones de $CO_2$ es $[145'1 ; 154'9]$

CALCULADORA $z_{\alpha/2}$




$P(z \leq z_{\alpha/2}) = 0'975$

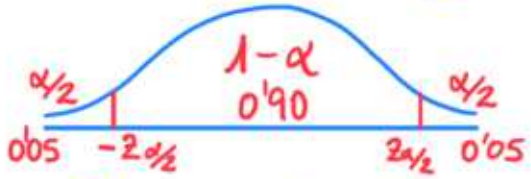
$z_{\alpha/2} = 1'96$

b) $E = z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$

$n = \left(\frac{z_{\alpha/2} \cdot \sigma}{E}\right)^2 = \left(\frac{1'645 \cdot 25}{3'5}\right)^2 =$

$= 138'06$

CALCULADORA $z_{\alpha/2}$




$P(z \leq z_{\alpha/2}) = 0'95$

$z_{\alpha/2} = 1'645$

El tamaño mínimo de la muestra debe ser 139 vehículos. $n \geq 139$

c) $n = 75$ ; $\overline{X} = 150$ ; I.C. $= [145'1 ; 154'9]$

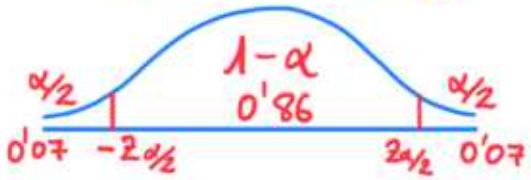
$E = L_s - \overline{X} = 154'9 - 150 = 4'9$

$$E = z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

$$\sigma = \frac{E \cdot \sqrt{n}}{z_{\alpha/2}} = \frac{4'9 \cdot \sqrt{75}}{1'48}$$

$$\sigma = 28'67$$

CALCULADOS $z_{\alpha/2}$




$P(z \leq z_{\alpha/2}) = 0'93$

$z_{\alpha/2} = 1'48$

La desviación típica es de 28'67 g/km