

Assignment:

100K amp, 500 sample - data given in that
300 are XL shirts, 200 L shirt. Find the total
no. of shirts required for 100K amp.

Soln:

Given

$$\text{Total amp} = 100 \text{ K}$$

$$\text{no. of XL} = 300 \quad \text{no. of L} = 200$$

$$\text{Assuming } CI = 95\%. \quad \bar{x} = 200 \quad \sigma = 100$$

$$SF = 0.05$$

For XL:

$$\text{lower fence} = \bar{x} - z_{\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}}$$

for XL

$$= 200 - \frac{20.05}{2} \left(\frac{100}{\sqrt{300}} \right)$$

$$= 200 - 1.96 \left(\frac{100}{17.32} \right)$$

$$= 188.68$$

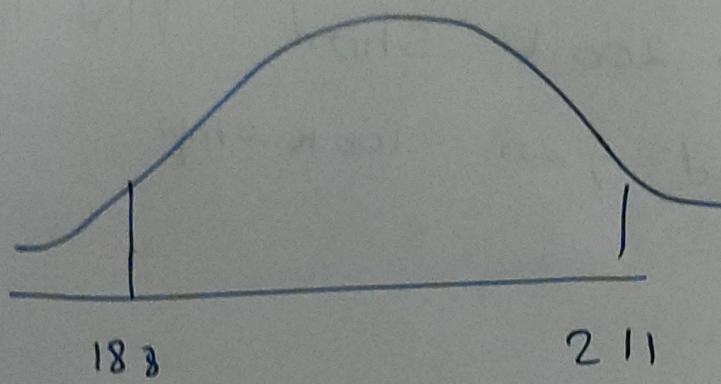
$$\text{High fence} = \bar{x} + z_{\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}}$$

for XL

$$= 200 + 1.96 \left(\frac{100}{17.32} \right)$$

$$= 211.36$$

For $x \leq$:



for $x < \text{short}$

For L: $n=20$

Lower fence = $\bar{x} - Z_{\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}}$

for L

$$= 200 - 1.96 \left(\frac{100}{\sqrt{200}} \right)$$

$$= 200 - 1.96 \left(\frac{100}{14.14} \right)$$

$$= 200 - 1.96 (7.072)$$

$$= 200 - 13.86$$

$$= 186.14$$

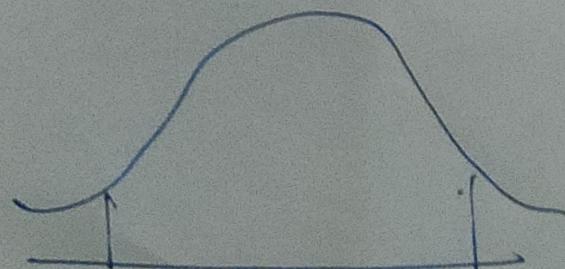
Higher fence = $\bar{x} + Z_{\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}}$

$$= 200 + 1.96 \left(\frac{100}{\sqrt{200}} \right)$$

$$= 200 + 1.96 (7.072)$$

$$= 200 + 13.86$$

$$= 213.86$$



→ for t-Chart