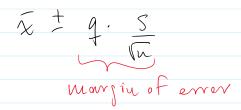
Example (hours) 95% (enfiduce Interva) > sam1 = gss\$hours > xbar = mean(sam1) > s = sd(sam1)> n = length(sam1) > ## Base R > # for the sample mean > alpha = 1 - 0.95 > q = qt(1 - alpha/2, df = n-1)[1] 1.964729 > xbar - q*(s/sqrt(n)) $\tilde{\chi} \stackrel{\perp}{=} q \stackrel{\sim}{=}$ [1] 40.07984 > xbar + q*(s/sqrt(n)) [1] 42.68416 We are 95% confident that The average number of working hours, M, is between 40.08 and 42.68 hours Few connends. - The confidence level refers to the process (or method) LD E.g. if CL=95% It means that if we repeat the oracess many times, about 95% of your CLS will contain the true M (check simulation) - Check lab for both theory-based and simulatron-11 methods to construct Confidence Intervals. Sauple Size 2 + 9. 5

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$$L = 2 \cdot (morgin of error)$$

$$L = 2 \cdot q \cdot \frac{s}{\sqrt{n}}$$

$$W = \left(\frac{2q \cdot s}{L}\right)^{2}$$

9. Mt. Wrightson, the fifth highest summit in Arizona and the highest in Pima County, has a reputed elevation of 9453 feet. To amuse its members, the Southern Arizona Hiking Club (SAHC) decides to construct its own confidence interval for μ , the true elevation of Mt. Wrightson's summit. SAHC acquires an altimeter whose measurements will have an expected value of μ with a standard deviation of 6 feet. How many measurements should SAHC plan to take if it wants to construct a 0.99-level confidence interval for μ that has a length of 2 feet?

$$CL=0.99$$
 $X=1-0.99$ $Q=qnorm\left(l-\frac{0.01}{2}\right)$

$$N = \left(\begin{array}{c} 2 \cdot q \cdot \sigma \\ \end{array}\right)^2 = \left(\begin{array}{c} Z \cdot q \cdot 6 \\ \end{array}\right)^2$$

> q = qnorm(1 - 0.01/2)
>
$$(q^*6)^2$$

[1] 238.8563

)- Ne noed 239 measurements

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