Starter 2/24

p. 498 #49-52

8.3b

One Sample t Interval for a Pop. Mean

$$\bar{x} \pm t^* \frac{s}{\sqrt{n}}$$

Stat → Tests → 8: TInterval (data or stats)

Proportions – use z^*
Means – use t^*

3 conditions:

1. Random
2. Normal – Normal Pop. or $n \geq 30$
3. Independent

A procedure (like calculating a C.I.) is ROBUST if the calculations remain fairly accurate when a condition is violated.

t procedures are quite robust. (except when there are outliers or strong skewness).

More on t procedure conditions

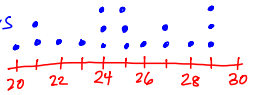
- Randomness is more important than Normality
- $n < 15$: can proceed if the data are close to Normal (unimodal, roughly symmetric, etc..)
- $15 \leq n < 30$: can proceed unless extreme outliers or strong skewness exists.
- $n \geq 30$: can always proceed (CLT)

examples on p. 513

1. Estimate μ – the mean # of squares of T.P. needed to absorb ¼ cup H_2O – at the 99% C-level.
2. We'll use a 1-sample t Interval for a population mean

Conditions: 1. Random — The rolls were randomly selected
2. Normal — n = 18

The dotplot shows no outliers or strong skewness so we can assume the population is approx. Normal.



3. Independent – 10(18) = 180
There are more than 180 rolls of T.P.

3. $\bar{x} \pm t^* \frac{s}{\sqrt{n}}$

We used a calculator

$\bar{x} = 24.944$
$s = 2.859$
$n = 18$

(22.991, 26.897)

4. We are 99% confident that the interval from 22.991 to 26.897 captures the true mean # of T.P. squares needed to absorb ¼ cup of H_2O.