

Agenda

leftovers: Ch 21 B3, C3

Ch 23 A2, 5c

Ch 21 B3 p 383

key words in question (#) leads in draws

100 draws w/ repl.

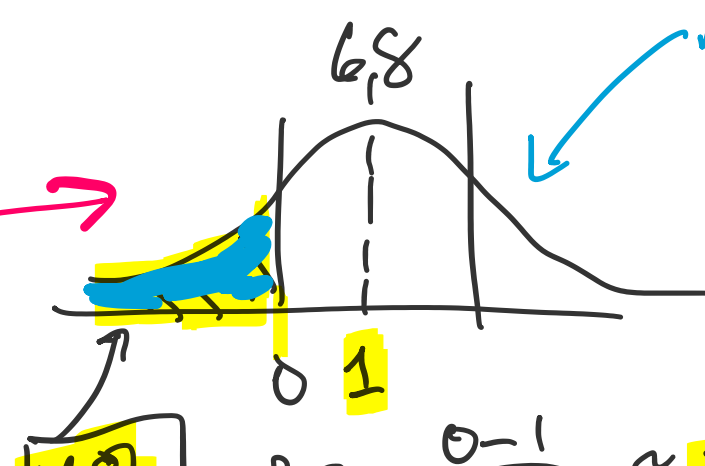
Box: (1) (1) (99) (0)

$ave(box) = \frac{1}{100}$

$SD(box) = \sqrt{\frac{1}{100} \cdot \frac{99}{100}} \approx .99$

(a) $\begin{cases} \text{expected (sum)} = \frac{1}{100} \cdot 100 = 1 \\ SE(sum) = SD(box) \cdot \sqrt{100} = .99 \end{cases}$ no correction factor!!

(b) 0%

(c) 

Gotta be wrong

$\frac{100 - 68}{2} \approx 16\%$

$z = \frac{0 - 1}{.99} \approx -1.01$

Central Limit Thm Does Not Apply

(d) No!

last time 1/2 of those values = SE(%'s)

Ch 21 C3 p 386

person 1	18% ± 3.84%
person 2	21% ± 4.06%
person 3	24.5% ± 4.3%

Actual %'s in box

see Fig 1 p 385

Ch 23 A2 p 413

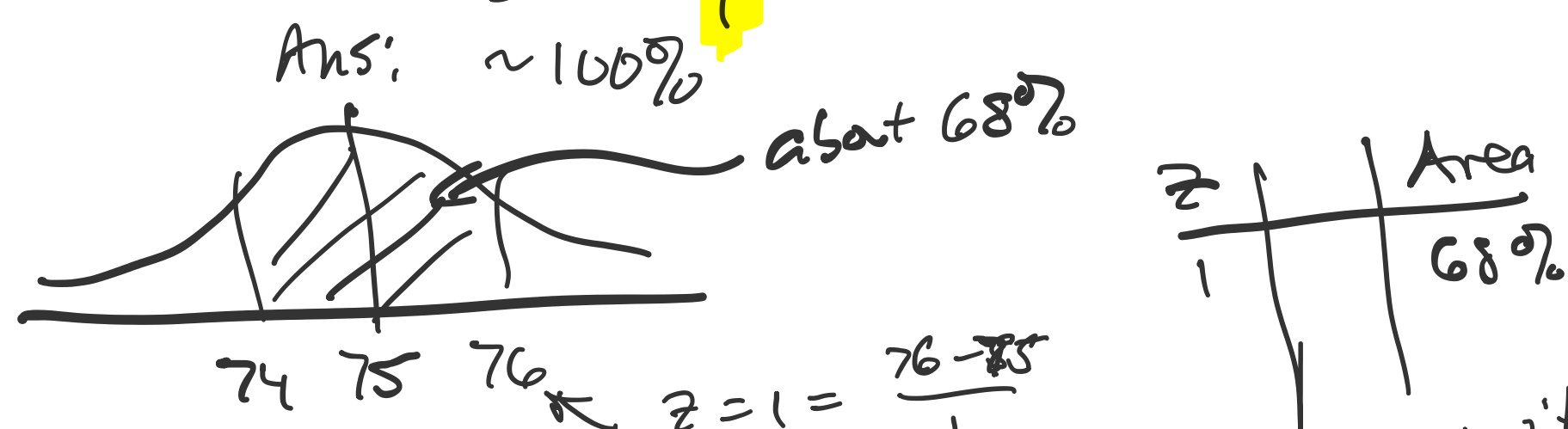
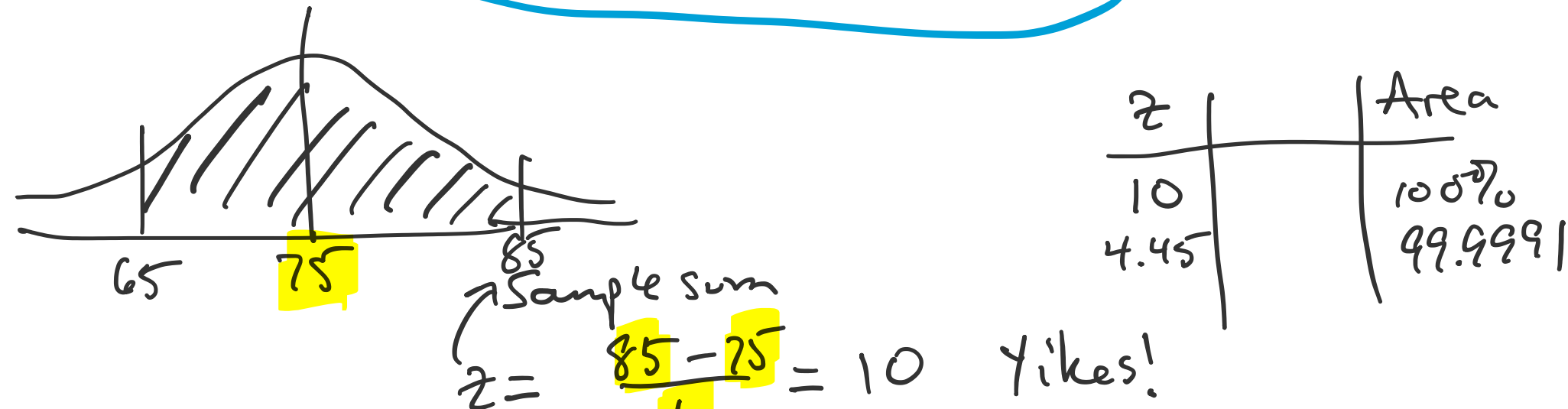
100 draws w/ repl.

Box: $ave(box) = 75$, $SD(box) = 10$

expected (ave) = $ave(box) = 75$

$SE(ave) = \frac{SE(sum)}{\#draws} = \frac{SD(box) \cdot \sqrt{\#draws}}{\#draws} = \frac{10 \cdot \sqrt{100}}{100} = 1$

Comment = $\frac{SD(box)}{\sqrt{\#draws}}$



Ch 23 A5 a,b,c

100 draws

Box: 10,000 fix, $ave(box) = 50$, $SD(box) = 20$

(a) $\begin{cases} \text{expected (ave)} = 50 \\ SE(ave) = \frac{SD(box) \cdot \sqrt{\#draws}}{\#draws} = \frac{20 \cdot \sqrt{100}}{100} = 2 \end{cases}$

50 ± 2

(b) without repl.

need correction factor? $\frac{100}{10,000} \approx 1\%$

So correction factor ≈ 1

corr. factor = $\sqrt{\frac{10,000 - 100}{10,000 - 1}} = 9995$

Ans: 50 ± 2

(c) 100 draws w/out repl.

Box: 100 fix in box, $ave(box) = 50$, $SD(box) = 20$

expected (ave) = 50

$SE(ave) = 0$ ← intuitively

$SE(ave) = \frac{SE(sum)}{\#draws} = \frac{SD(box) \cdot \sqrt{\#draws}}{\sqrt{\#draws}} = 0$

Ans: 50 ± 0

"with replacement" ↔ no c.f. in SE formulas

"without replacement" ↔ use c.f. in SE formulas

"Simple random sample" ↔

* but you can omit c.f. if sample size is small compared to the population size (# fix in box) small ~ 5% or less

Summary of SE formulas p 422

Ch 17	SE(sum)	square root law
Ch 23	SE(ave)	
also ch 17, 18	SE(count)	count = sum from 0-1 box
Ch 21	SE(%'s)	

compare to Summary Notes