Discussion 5

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Review: Expected Value for sum of draws and SE for sum of draws

- Expected sum = Avg of the box $\times$ number of draws
- Standard error for sum = Sd of the box $\times \sqrt{number\ of\ draw}$

Review Chapter 18

- Normal approximation
- When drawing at random with replacement from a box, the probability histogram for the sum will follow the normal curve.
- CLT: Central limit theorem

- The center (New Average) for the normal is expected value.
- The spread (New SD) for the normal is standard error(SE).

New: Proportion (Chapter 20)

- Expected proportion = Avg of the box
- Standard error for proportion = Sd of the box / ($\sqrt{number\ of\ draw}$)

- 1. What is the proportion of getting a six for rolling a dice for 1 time?
- 2. What is the expected value of proportion of number 6 for rolling a dice for 100 time?
- 3. What is the SE for proportion of number 6 for rolling a dice for 100 time?

Summary

	New Average (Expected Value)	New SD (Standard Error)
Proportion (Average)	Average of box	Sd of the box $/\sqrt{number\ of\ draw}$
Sum	Avg of the box × number of draws	Sd of the box × $\sqrt{number\ of\ draw}$

- After we get new average and new SD
- Chapter 5 question appears again: percentile, middle area, some certain area

Example

- A coin will be tossed for 100 times.
- What is the chance of :
- (b) the proportion of heads between 0.40 and 0.60

CH21

- Confidence Interval

- 95% Confidence Interval: Use z value=1.96 / 2.

- 95% Confidence Interval:
- [Average – 1.96 * Variation, Average +1.96 * Variation]

- Box model : [EV – 1.96 * SE, EV +1.96 * SE]

Two Sample Comparison