ch18 rev ex 2,4

Thursday, April 2, 2020 4:09 PM

Ch 18 Rev Ex #2

(a)

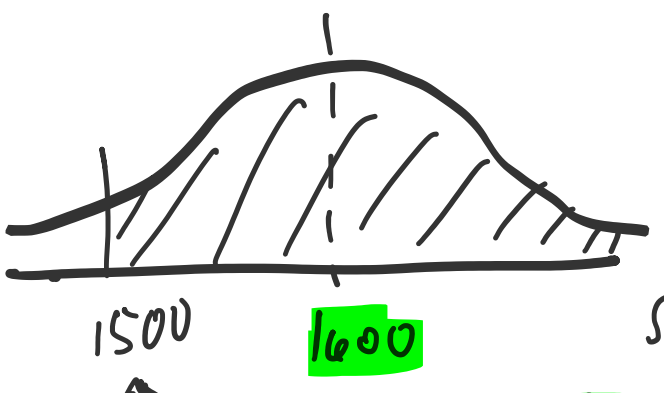
① 1 3 5 7 → 400

② ave(box) = $\frac{1+3+5+7}{4} = 4$

SD(box) = $\sqrt{\frac{(-3)^2+(-1)^2+(1)^2+(3)^2}{4}} = \sqrt{5}$

③ Expected sum = $4 \cdot 400 = 1600$

SE sum = $\sqrt{5} \cdot \sqrt{400} = 20\sqrt{5} \approx 44.72$



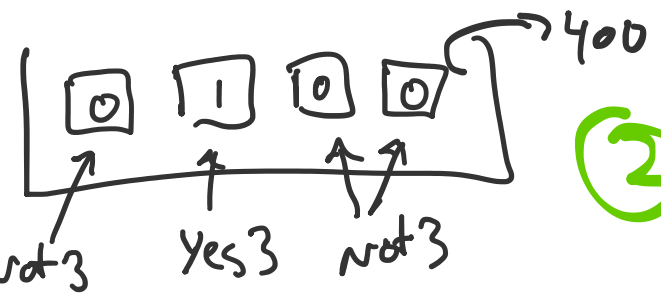
sum of 400 draws

$z = \frac{1500-1600}{44.72} \approx -2.24$

z	Area
2.24	97.22

Ans: $50 + \frac{1}{2}97.22 \approx$ 98.6% or 99%

(b)

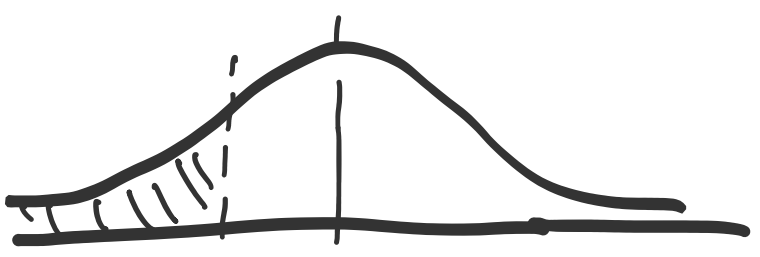
① 

② ave(box) = $\frac{1}{4}$

SD(box) = $(1-0)\sqrt{\frac{1}{4}\cdot\frac{3}{4}} = \frac{\sqrt{3}}{4}$

③ Expected sum = $\frac{1}{4} \cdot 400 = 100$

SE sum = $\frac{\sqrt{3}}{4} \cdot \sqrt{400} = 5\sqrt{3} \approx 8.66$



sum of 400 draws

$z = \frac{90-100}{8.66} \approx -1.15$

z	Area
1.15	75

Ans: $\frac{100-75}{2}$ ~ 13%

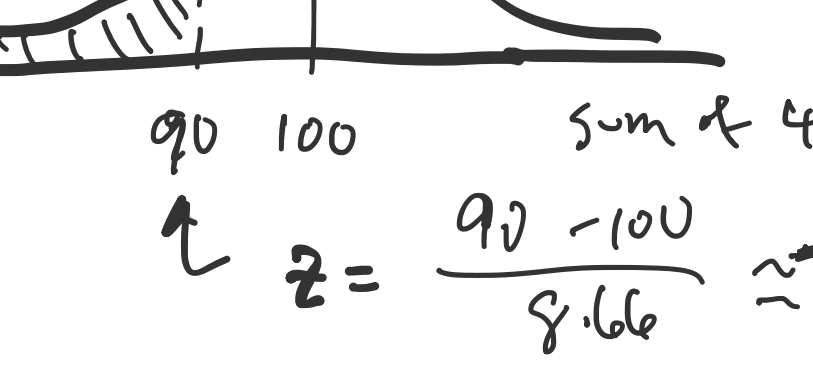
Ch 18 Rev Ex #4

ave(box) = 1/2

SD(box) = 1/2

Expected sum = 12.5

SE sum = 2.5



sum of 25 draws

$z = \frac{11.5-12.5}{2.5} = -0.4$

z	Area
.4	31

Ans: $\frac{1}{2}$ of 31% ~ 15 or 16%

Check! using binomial formula

$n = 25$, $k = 12$, $p = \frac{1}{2}$

$P = \frac{25!}{12!\,13!}\left(\frac{1}{2}\right)^{12}\left(\frac{1}{2}\right)^{13} \approx 15.5\%$

Wahoo!