Lab 4

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BIOSTAT 100A Summer Session C 2024

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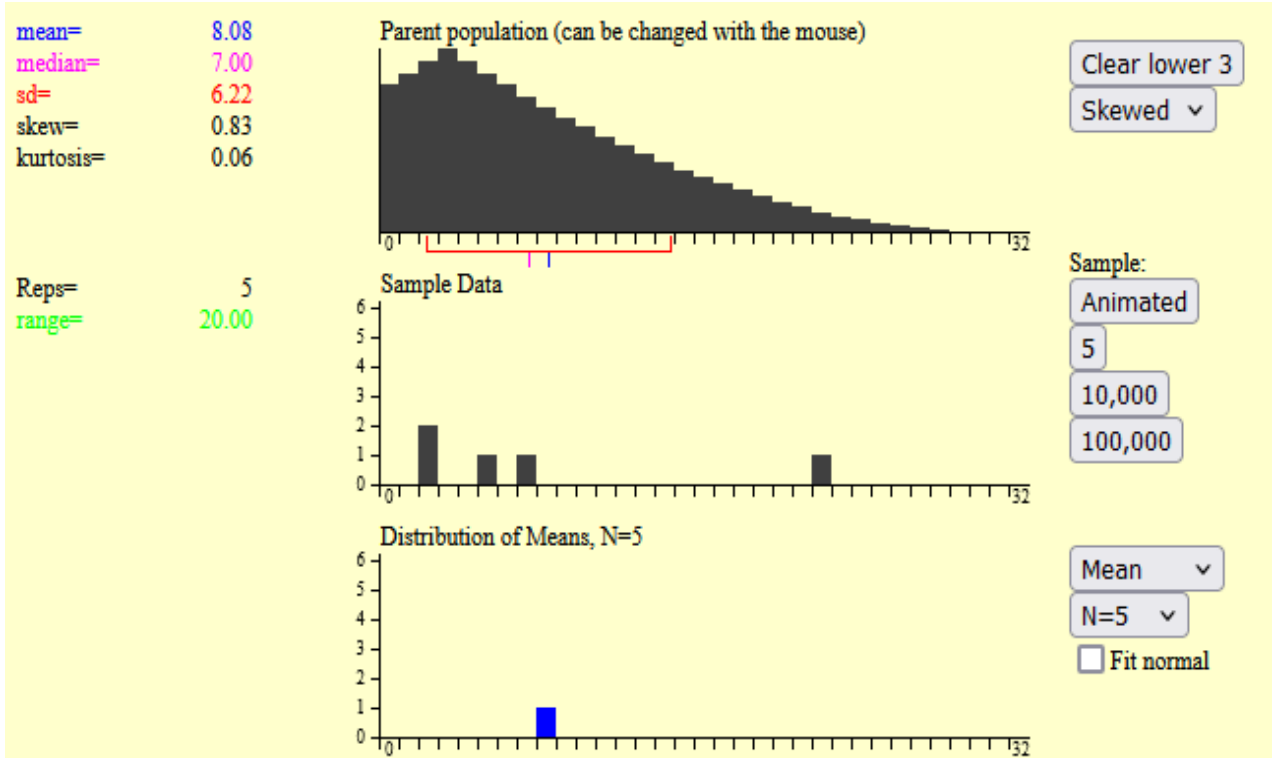
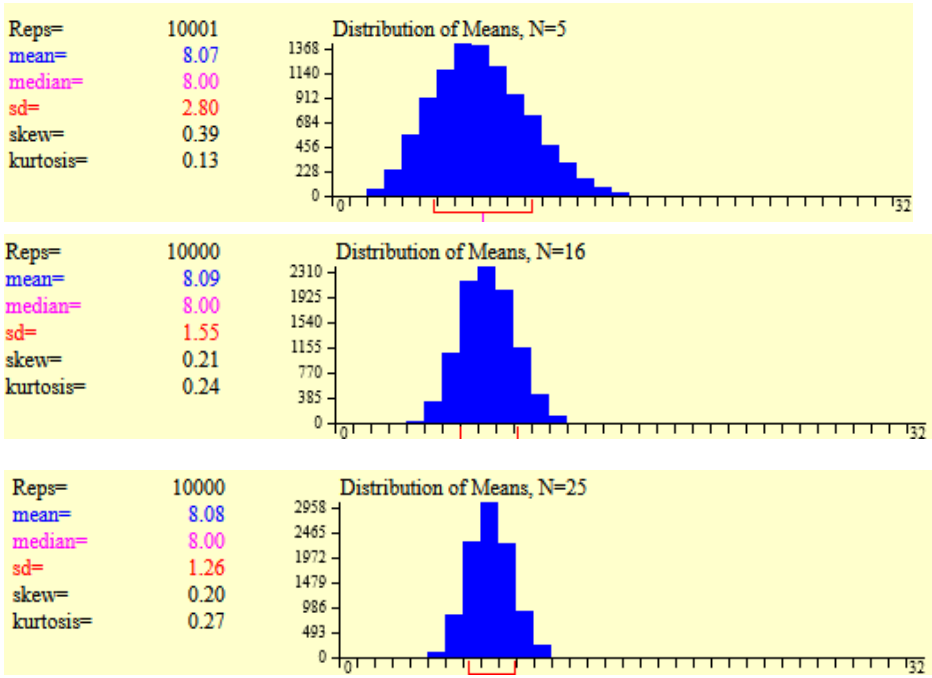
Properties of the Sampling Distribution of $\bar{x}$

What is a Sampling Distribution?



10,000 iterations later…



What do you notice?

- *About the Shape?*
- *What happens as we increase the sample size?*

Properties of the Sampling Distribution of $\bar{x}$

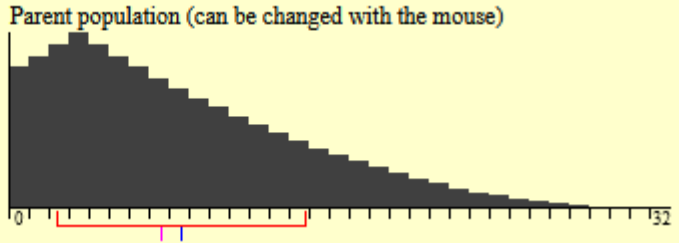
(1)

(2)

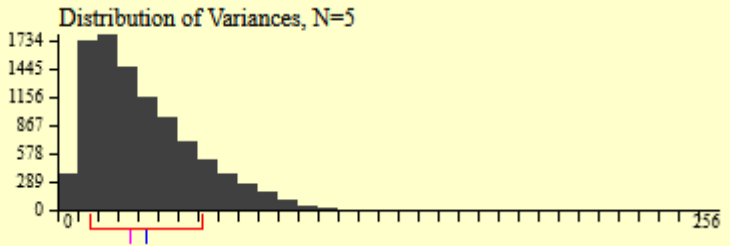
(3)

Let’s do the same thing for the variances…

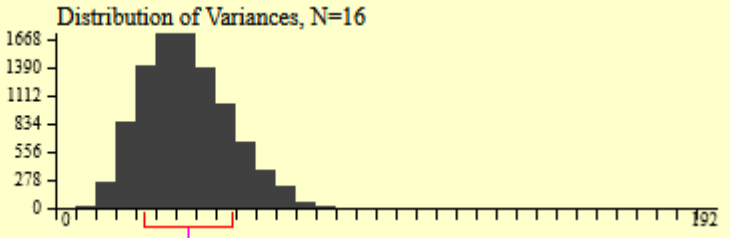
mean=	8.08
median=	7.00
sd=	6.22
skew=	0.83
kurtosis=	0.06



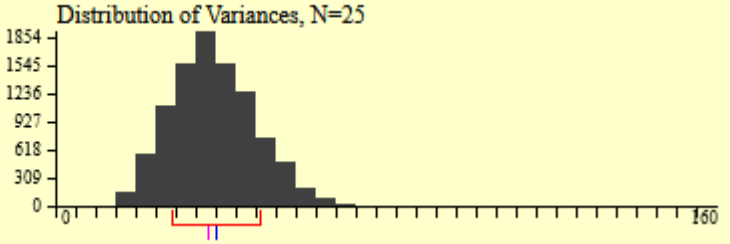
Reps=	10000
mean=	30.87
median=	24.00
sd=	22.37
skew=	1.10
kurtosis=	1.14



Reps=	10000
mean=	36.41
median=	36.00
sd=	13.43
skew=	0.53
kurtosis=	0.36



Reps=	10000
mean=	37.21
median=	35.00
sd=	10.95
skew=	0.41
kurtosis=	0.21



What do you notice?

- *About the Shape?*
- *What happens as we increase the sample size?*

Properties of Sampling Distribution of s^2, $s^2 = \frac{\sum_{i=1}^{n}(x_i - \bar{x})^2}{n-1}$ (sample variance)

Competency Assessment

- In a family of 3 children, what is the probability of 2 boys and 1 girl?

Binomial Distribution