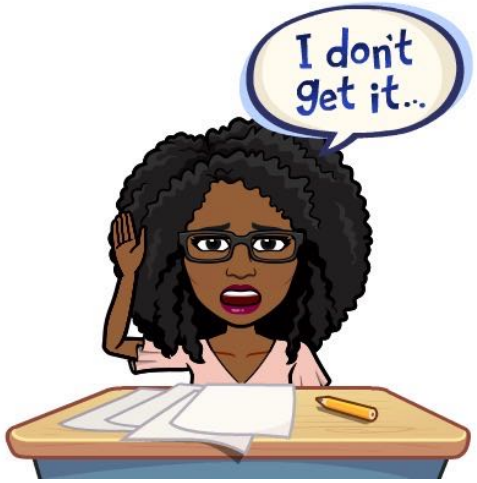
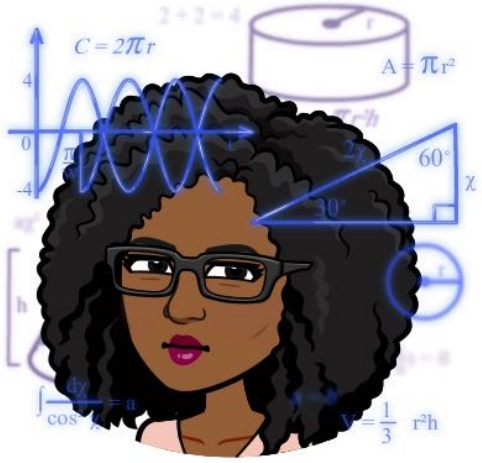
SAMPLING DISTRIBUTIONS EXPLORATION ACTIVITY

Keisha Brown
Georgia State University – Perimeter College
klanier1@gsu.edu

PURPOSE





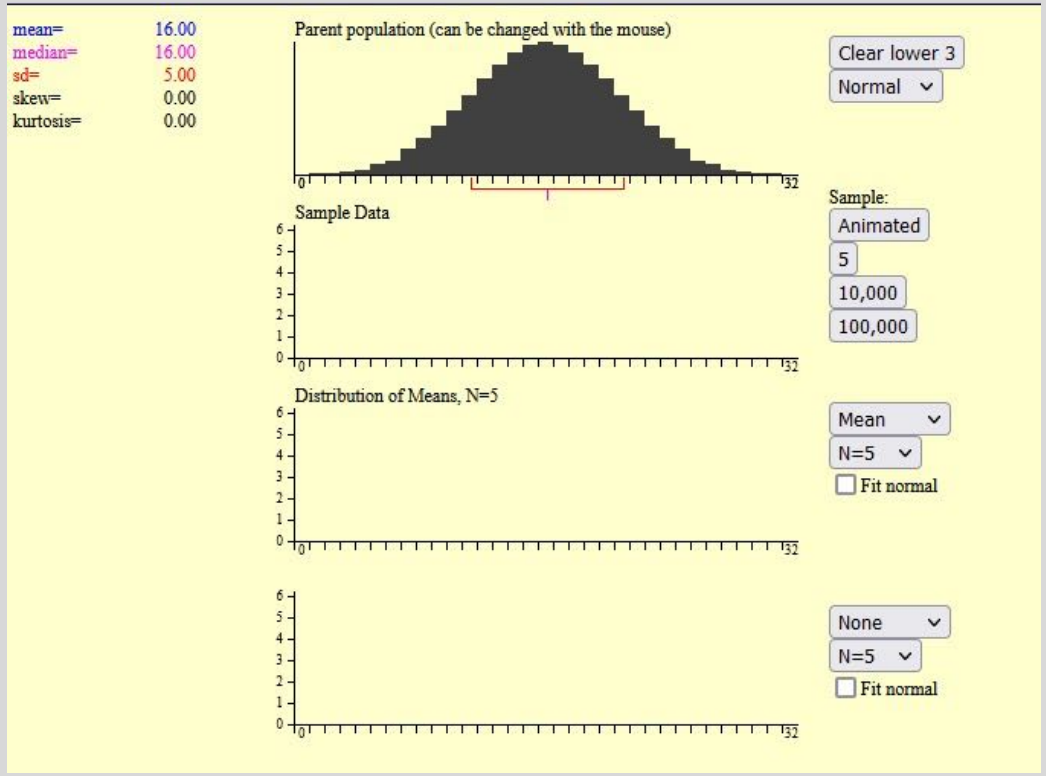
TASK

		Uniform Distribution	Right Skewed Distribution	Bell–shaped Distribution
Population	What does the population look like? (Name and picture)			
	What is the mean of the population?			
	What is the standard deviation of the population?			
Sampling Distribution with samples of size n = 2	Select 10,000 samples of size 2. What does the distribution of the sample means look like? (Name and picture)			
	What is the mean of the distribution of the sample means?			
	What is the standard deviation of the distribution of the sample means?			
Sampling Distribution with samples of size n = 30	Select 10,000 samples of size 30. What does the distribution of the sample means look like? (Name and picture)			
	What is the mean of the distribution of the sample means?			
	What is the standard deviation of the distribution of the sample means?			

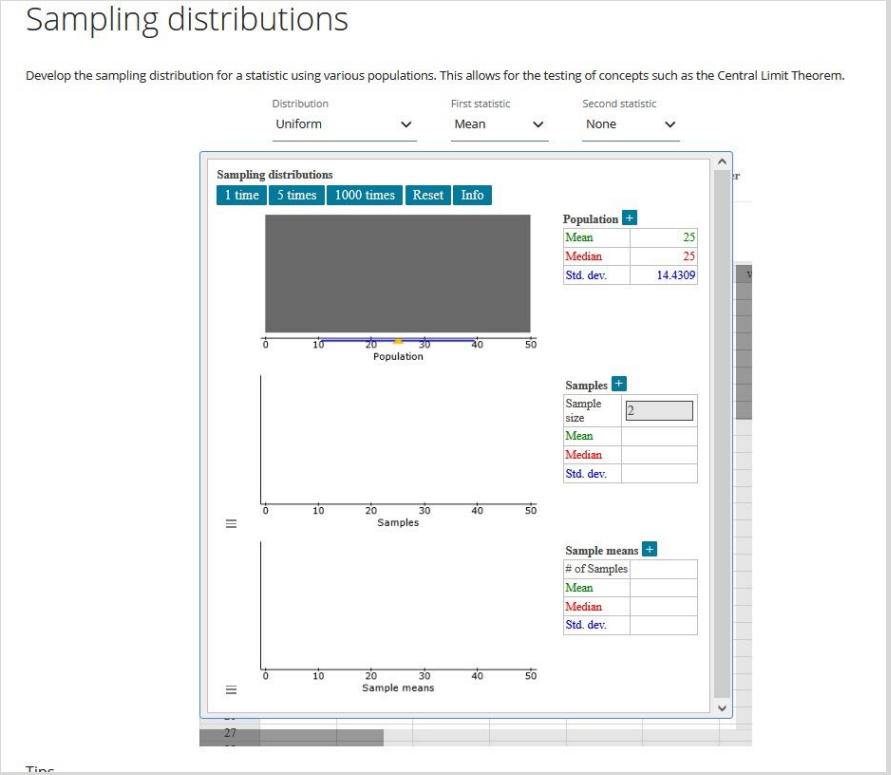
Write a 1 – 2 paragraph summary of what you have learned. Make sure to use complete sentences.

Free Applets

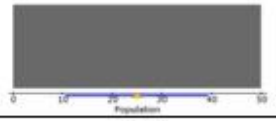
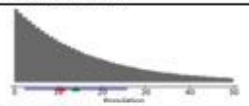
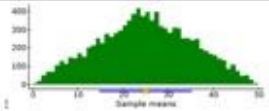
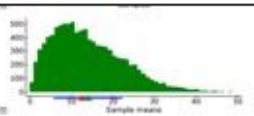
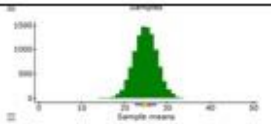
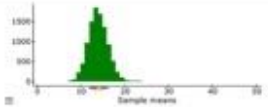
https://onlinestatbook.com/stat_sim/sampling_dist/index.html



https://www.statcrunch.com/applets/type3&samplingdist



Use each of the following distributions to answer the questions.

		Uniform Distribution	Right Skewed Distribution	Bell–shaped Distribution
Population	What does the population look like? (Name and picture)	Uniform 	 Right-skewed	 bell
	What is the mean of the population?	25	14.0519	25
	What is the standard deviation of the population?	14.4309	11.8255	5
Sampling Distribution with samples of size n = 2	Select 10,000 samples of size 2. What does the distribution of the sample means look like? (Name and picture)	 triangle	 Right-skewed	 bell
	What is the mean of the distribution of the sample means?	25.0249	14.0218	24.9804
	What is the standard deviation of the distribution of the sample means?	10.28	8.3495	3.5227
Sampling Distribution with samples of size n = 30	Select 10,000 samples of size 30. What does the distribution of the sample means look like? (Name and picture)	 bell	 bell	 bell
	What is the mean of the distribution of the sample means?	24.9967	14.0505	25.009
	What is the standard deviation of the distribution of the sample means?	2.6405	2.1618	0.9084

REVIEWING THE RESULTS

Making It Easier (MyLab Statistics Automatic Grading)

Homework: Lab 3: Sampling Distributions Investigation

Show completed problem

Score: 0 of 9 pts | 1 of 6 (0 complete) | **HW Score:** 0%, 0 of 3

Instructor-created question

Tutoring | Question Help

In this activity, you will use the information that you learned from watching the 3 previous videos and the Sampling Distributions app in Statcrunch in order to explore Sampling Distributions. You will answer questions about the Sampling Distrbutions created from a **Uniform population**, a Right-skewed population, and a Normal population

First, to open the app. Click on the "StatCrunch" link in MyLab Statistics. Click on the 2nd link for the "Statcrunch website" option. In the navigation bar, click on "Open StatCrunch". Click the "Applets" button. Select "Sampling distributions".

For the questions below, you will answer questions about the Sampling Distribution created from a population that's **uniform**. In the Sampling distributions app, select "Uniform", and click "Compute".

1.) What is the mean of the population?

2.) What is the standard deviation of the population? Round your answer to 2 decimal places.

3.) Now, let's create a Sampling Distribution from a sample size (n) = 2. We want to create 10,000 samples, so click the "1000 times" button 10 times. The graph at the bottom is your Sampling Distribution. What does the shape look like?

- A. Normal (bell-shaped)
- B. Pyramid (a triangle)
- C. Left-skewed (skinny on the left)
- D. Right-skewed (skinny on the right)
- E. Uniform (rectangular)

4.) What is the mean of the sampling distribution of the sample mean? Round your answer to 2 decimal places.

5.) What is the standard deviation of the sampling distribution of the sample mean? Round your answer to 2 decimal places.

6.) Is the standard deviation of the population (uniform graph at the top) bigger or smaller than the standard deviation of the sampling distribution (graph at the bottom in green)?

Click to select your answer(s) and then click Check Answer

Results

- Test 3 scores increased, and now it is not the test with the lowest average performance. (Hypothesis Testing and Confidence Intervals are now.)
- The majority of students answered the questions on sampling distributions of the sample mean correctly.
- It was easier for students to grasp the concept of sampling distributions of the sample proportion.