

What pattern do the means of repeated samples seem to make?

Task One.

Using the programs NORMPOP and SEEMEANS complete the following.

Given we have a population of 999 elements and have the measure of one attribute (e.g.) weight of each element, denoted by the variable X we can say that

X is distributed normally with:

mean (μ) = _____ and

std. deviation (σ) = _____.

From this population we take 100 SRSs of a give size (n) and then compute and store the means for each. Let \bar{X}_n be the mean of one SRS of size n . Therefore, given we will take 100 samples, we will have a distribution for \bar{X}_n that will have a mean $\mu(\bar{X}_n)$ and a standard deviation $\sigma(\bar{X}_n)$

Variable	Shape of the Distribution	$\mu(\bar{X}_n)$	$\sigma(\bar{X}_n)$
\bar{X}_4			
\bar{X}_8			
\bar{X}_{16}			
\bar{X}_{27}			
\bar{X}_{49}			
\bar{X}_{81}			

Task Two.

What patterns can you make out from this table? See if you develop a formula that would help you predict $\mu(\bar{X}_n)$ and $\sigma(\bar{X}_n)$ given μ and σ .