	Population	**One Simple Random Sample $y_1, y_2, \ldots, y_n$ of size n**	**All Simple Random Samples of size n**
Associated Distribution	Distribution of Y	None	Sampling Distribution (Distribution of $\bar{Y}_n$)
Associated Mean(s)	Population mean μ, also called E(Y), or the expected value of Y, or the expectation of Y	Sample mean $\bar{y} = (y_1 + y_2 + \ldots + y_n)/n$ It is an estimate of μ.	1) Each sample has its own mean $\bar{y}$. This allows us to define a random variable $\bar{Y}_n$. The population for $\bar{Y}_n$ is all simple random samples from Y. The value of $\bar{Y}_n$ for a particular simple random sample is the sample mean $\bar{y}$ for that sample. 2) Since it is a random variable, $\bar{Y}_n$ also has a mean, $E(\bar{Y}_n)$. Using the model assumptions for this particular example, it can be proved that $E(\bar{Y}_n) = \mu$. In other words, the random variables Y and $\bar{Y}_n$ have the same mean.
Associated Standard Deviation	*Population standard deviation* σ	*Sample standard deviation* $s = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(\bar{x} - x_i)^2}$ s is an estimate of the population standard deviation σ	*Sampling distribution standard deviation* $\sigma/\sqrt{n}$