Lesson 6: Sampling Distributions of the Sample Mean; Central Limit Theorem

Preparation

Solutions

Please note that the steps show rounded numbers, but that the final answers to the problems are calculated without rounding.

Problem	Part	Solution
1	-	The sampling distribution is the set of all possible sample means from a population. Although we will only see one sample mean in our study, there are many sample means that could have possibly been observed.
2	-	Normal
3	-	Approximately Normal
4	-	The sampling distribution more closely approaches a normal distribution and the standard deviation decreases. The mean is unchanged.
5	-	The Central Limit Theorem states that if the sample size is large, the sample mean will be approximately normally distributed. That is it. The Law of Large Numbers states that as the sample size increases, the standard deviation of the sample mean will get smaller.
6	-	X-bar is normally distributed if the data were drawn from a normal population, or if the sample size is sufficiently large.
7	A	This depends on which of the 5 salaries you drew.
7	B	Your mark depends on the 5 salaries you drew.
7	C	This will depend on what your sample mean is.
7	D	Compare your mean with three other people and write what you noticed.
8	A	Normally Distributed
8	B	The parent population is normally distributed
8	C	$\mu = 529$
8	D	Standard Deviation $= 35.734$