

STAT 110

Chapter 20 and 21 Definitions

Central limit theorem – the sampling distribution for the mean of a random sample will become approximately normally distributed as the sample size increases, as long as the original population has a mean and a variance (this works for proportions too, because they are just means)

Expected value – found by multiplying each outcome by its probability and then summing over all possible outcomes

Given possible outcomes: a_1, a_2, \dots, a_k

and probabilities: p_1, p_2, \dots, p_k

expected value = $a_1 p_1 + a_2 p_2 + \dots + a_k p_k$

Law of large numbers - If a random phenomenon with numerical outcomes is repeated many times independently, the mean of the sample approaches the expected value.

The sampling distribution for the proportion from a simple random sample from a large population has (approximately) has mean p and standard deviation

$$\sqrt{\frac{p(1-p)}{n}}$$