

## 7.7: Chapter Review

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### 7.1 The Central Limit Theorem for Sample Means

In a population whose distribution may be known or unknown, if the size ( $n$ ) of samples is sufficiently large, the distribution of the sample means will be approximately normal. The mean of the sample means will equal the population mean. The standard deviation of the distribution of the sample means, called the standard error of the mean, is equal to the population standard deviation divided by the square root of the sample size ( $n$ ).

### 7.2 Using the Central Limit Theorem

The Central Limit Theorem can be used to illustrate the law of large numbers. The law of large numbers states that the larger the sample size you take from a population, the closer the sample mean  $\bar{x}$  gets to  $\mu$ .

### 7.3 The Central Limit Theorem for Proportions

The Central Limit Theorem can also be used to illustrate that the sampling distribution of sample proportions is normally distributed with the expected value of  $p$  and a standard deviation of  $\sigma_p = \sqrt{\frac{p(1-p)}{n}}$

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