KEY

# AP Chapter 7 Review

A number that describes the whole population is known as a PARAMETER.

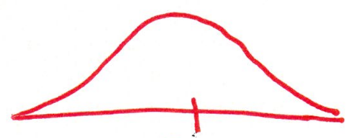
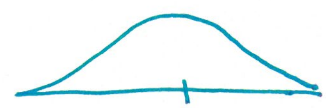
A number that is calculated from a sample is known as a STATISTIC.

We always use a STATISTIC to estimate a PARAMETER.

In Section 7-2, we used a sample proportion ($\hat{p}$) to estimate a population proportion.

In Section 7-3, we used a Sample mean ($\bar{x}$) to estimate a population mean.

**Summary:**

| | Sample Proportions | Sample Means |
|---|---|---|
| What is the parameter? | $p$ | $\mu$ |
| What is the statistic? | $\hat{p}$ | $\bar{x}$ |
| Draw Sampling Distribution. | Sampling Distr. of $\hat{p}$  $p$ $\mu_{\hat{p}}$ | Sampling Dist of $\bar{x}$  $\mu$ $\mu_{\bar{x}}$ |
| When is the sampling distribution approximately normal? | NORMAL: LARGE COUNTS $np \geq 10$ $n(1-p) \geq 10$ | #1 THE POPULATION DISTRIBUTION IS APPROX. NORMAL OR #2 IF THE SAMPLE IS LARGE, CLT ($n \geq 30$ |
| What is the mean of the sampling distribution? | $\mu_{\hat{p}} = p$ | $\mu_{\bar{x}} = \mu$ |
| What is the standard deviation of the sampling distribution? | $\sigma_{\hat{p}} = \sqrt{\frac{p(1-p)}{n}}$ | $\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$ |
| What condition must be satisfied in order to use the above S.D. formula? | INDEPENDENCE Sampling w/o replacement - 10% Condition $n \leq 1/10 N$ | |
| What is the formula for a z-score? | $Z = \frac{\hat{p} - p}{\sqrt{\frac{p(1-p)}{n}}}$ | $Z = \frac{\bar{x} - \mu}{\sigma / \sqrt{n}}$ |

Key Points of Binomial Distributions (CH6)

BINS

$\mu = np$

$\sigma = \sqrt{np(1-p)}$

$P(X=k) = {}_nC_k \cdot p^k \cdot (1-p)^{n-k}$