

AP Statistics  
10-1  
020808

# Statistical Inference

Point Estimation / Confidence Intervals

Tests of Significance

# Point Estimation

What is the distribution of the bag?

To what extent can we describe the shape, center and spread?

# Confidence Intervals

## Structure

Sample Mean  $\pm$  Margin of Error

$$\bar{x} \pm z^* \cdot \frac{\sigma}{\sqrt{n}}$$

$\uparrow$   
z. star

$\uparrow$   
Standard error  
of the mean

## Confidence Intervals

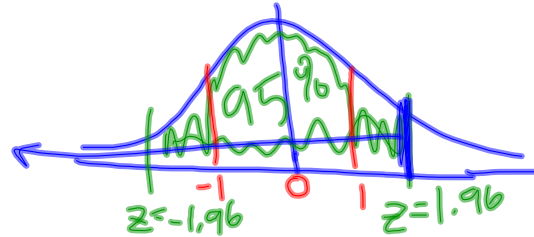
Confidence Level - determines  $Z^*$  what is my <sup>sem</sup> grade?

80%	→	between 86-91
90%	→	" 84-93
95%	→	" 81-96
99%	→	50-100
100%	→	0-100

$n=5$     $\bar{x}=46.4$     $\sigma=8$  pop normal  
(construct 95% Confidence Interval)

$$\bar{x} \pm z^* \frac{\sigma}{\sqrt{n}}$$

To find  $z^*$ , establish the normal



$$\text{InvNorm}(.975) = 1.96$$

$$46.4 \pm 1.96 \left( \frac{8}{\sqrt{5}} \right)$$

$$46.4 \pm 7.012$$

$$(39.388, 53.412)$$

$z^*$  for  
90%

$z^* =$

$$(40.515, 52.285)$$