

# CONFIDENCE INTERVAL FOR A POPULATION PROPORTION

$$\hat{p} \pm z_{\alpha/2} \sqrt{\frac{\hat{p}\hat{q}}{n}}$$

Margin of Error

point estimate      critical value      standard error

Example: In a survey of 1600 Internet users 70% of the people said that it would be very hard to give up the computer. Construct a 99% confidence interval for the population proportion of those users.

$$n = 1600$$

$$\hat{p} = .70$$

$$\hat{q} = 1 - .70 = .30$$

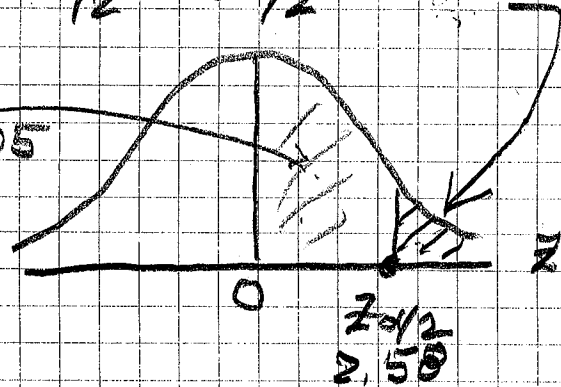
$$CC = .99$$

$$\alpha = 1 - CC = 1 - .99 = .01$$

$$\alpha/2 = .01/2 = .005$$



$$.5 - .005 = .495$$



$$.70 \pm 2.58 \sqrt{\frac{.7 \times .3}{1600}} =$$

$$= (.67, .73)$$