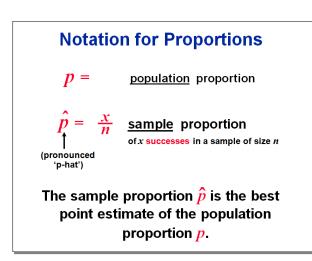


1. The sample is a simple random sample.

2. The conditions for the binomial distribution are satisfied (See Section 4-3.)

3. The normal distribution can be used to approximate the distribution of sample proportions because  $np \ge 5$  and nq $\ge 5$  are both satisfied.

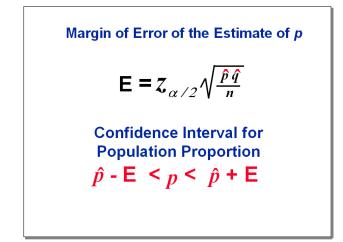
Feb 6-5:08 PM



Feb 6-5:16 PM

Ex1a) A survey of 2450 golfers showed that 281 of them are left-handed. Find the point of estimate for p, the population proportion of golfers who are left-handed.

Ex1b) Find the point of estimate if 250 houses were surveyed and found that 62 people owned at least one gun.



Feb 6-5:15 PM

Round-Off Rule for Confidence Interval Estimates of *p* 

Round the confidence interval limits to

three significant digits.

Feb 6-5:18 PM

Ex2a) *Misleading Responses:* Do people lie about voting? In a survey 1002 people, 701 people said that they voted in the recent presidential election. The voting records show only 61% of eligible voters actually voted. • Let's create a 95% confidence interval to determine the proportion of people who should have voted.  $\mathbf{E} = \mathbf{Z}_{\alpha/2} \sqrt{\frac{\hat{p}\,\hat{q}}{n}}$  $\hat{p} - \mathsf{E}$  $\bigstar \stackrel{\wedge}{p} = \frac{x}{n} \qquad \frac{701}{1002} = 0.6996$  $\star \dot{q} = 1 - \dot{q} = 0.3004$  $\bigstar$  E = 1.96  $\sqrt{\frac{(0.6996)(0.3004)}{1002}}$  = 0.0283855 ★ 0.6996 - 0.0283855 <  $\mu$  < 0.6996 + 0.028355 ★ 0.671 <  $\mu$  < 0.728 Were they lying about who voted?

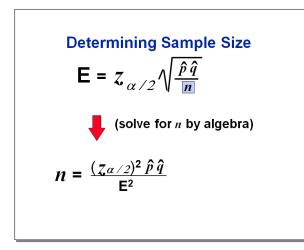
Feb 8-7:45 AM

Ex2b) A survey of 100 fatal accidents showed that 52 were alcohol related. Construct a 98% confidence interval for the proportion of fatal accidents that were alcohol related.

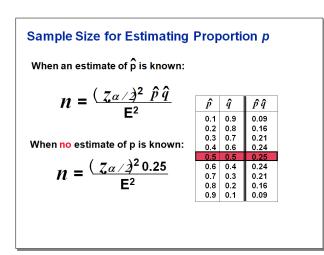
$$\mathbf{E} = \mathbf{Z}_{\alpha/2} \sqrt{\frac{\hat{p}\hat{q}}{n}} \qquad \hat{p} - \mathbf{E} 
$$\Rightarrow \quad \hat{p} = \frac{\mathbf{X}}{n}$$

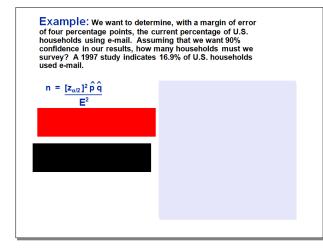
$$\Rightarrow \quad \hat{q} = 1 - \hat{q}$$$$



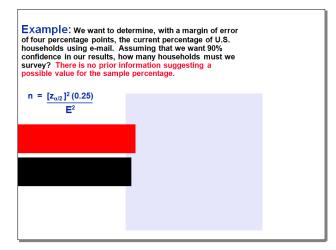








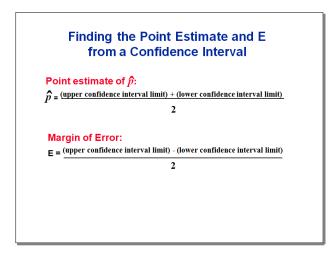
Feb 6-5:20 PM



Feb 6-5:21 PM

Try: A pollster wishes to estimate the proportion of U.S. voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 2%?

☆





Ex4) The following confidence interval represents the proportion of fatal accidents caused by the use cell phones while driving. Determine the margin of error and p. 0.170E

Feb 8-9:17 AM