Algebra 2

9-05 Making Inferences from Sample Surveys

Descriptive Statistics

- _____, _____, _____ of data

Inferential Statistics

- Using a sample to draw _____
- Make _____ (inferences) about the population

The numbers of coupons purchased in the past year by a random sample of 40 adult users of a restaurant discount service are shown in the table. Estimate the population mean μ.

Number of Coupons				
45	32	44	49	33
31	36	55	51	38
66	40	71	9	27
104	14	18	11	64
22	3	38	50	18
28	12	33	44	21
41	19	35	25	39
49	27	45	24	41

Church leaders wants to know if youth like their Sabbath School. They conduct several surveys of randomly selected youth. The results are shown in the table.

Based on the first 2 surveys, do you think more youth like Sabbath School?

Based on all the surveys, do you think more youth like Sabbath School?

Sample Size	Number of "Yes" Responses	Percent of "Yes" Responses
3	2	66.7%
15	11	73.3%
40	16	40%
60	25	41.7%
105	46	43.8%
160	72	45%
200	94	47%

A national polling company claims 28% of U.S. adults say students should be required to participate in a physical education class every school day. You survey a random sample of 50 adults.

a. What can you conclude about the accuracy of the claim when 16 adults in your survey agree?

b. What can you conclude about the accuracy of the claim when 21 adults in your survey agree?

Margin of Error

- In normal distributions, _____ of data is within _____ standard deviations of the _____
- 2 standard deviations ≈ _____

If a standard deviation is about 0.06, find and interpret the margin of error.

Margin of Error (95% confidence)

$$Error = \pm\frac{1}{\sqrt{n}}$$

- True result likely between
  - $p - \frac{1}{\sqrt{n}}$ and $p + \frac{1}{\sqrt{n}}$

In a survey of 2680 U.S. adults, 34% said that movies are their main source of entertainment. Give an interval that is likely to contain the exact percent of U.S. adults who think movies are their main source of entertainment.

501 #1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 29, 33, 35, 41, 43, 45, 47 = 20