

Algebra II

Section 12.5 - Working with Samples

Obj: -To find sample proportions
-To find the margin of error

Def: -A **sample** gathers information from only part of the whole population.

-A **sample proportion** is the ratio of $\frac{x}{n}$, where x is the number of time an event occurs, and n is the sample size.

1. In a sample of 500 teenagers, 328 had never attended a popular music concert. Find the sample proportion.

Sample proportion = -----

Margin of Error Formula:

When a random sample of size n is taken from a large population, the sample proportion has a margin of error of

approximately $\pm \frac{1}{\sqrt{n}}$

2. A survey of 528 high school seniors found that 65% already had career plans after high school.

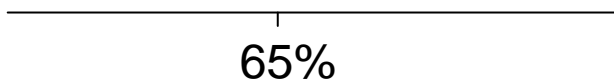
a) Find the margin of error for the sample.

$$\text{Margin of error} = \pm \frac{1}{\sqrt{n}}$$

b) Use the margin of error to find an interval that is likely to contain the true population proportion

$$65\% + \underline{\hspace{1cm}} =$$

$$65\% - \underline{\hspace{1cm}} =$$

Graphically: 

The proportion of seniors who already have career plans is likely to be from _____% to _____%.

3. A poll reports that 56% of voters favor Candidate B with a margin of error of $\pm 3\%$. Estimate the number of voters in the poll.

$$\text{Margin of error} = \pm \frac{1}{\sqrt{n}}$$

$$\text{Margin of error} = \underline{\hspace{1cm}}$$

$$n = \underline{\hspace{1cm}}$$