FINDING MARGIN OF ERROR Find the margin of error for a survey that has the given sample size. Round your answer to the nearest tenth of a percent.

6. 260　　　7. 1000　　　8. 750　　　9. 6400

10. 3275　　11. 525　　12. 2024　　13. 10,000

14. ★ **TAKS REASONING** In a survey of 2000 voters, 45% said they planned to vote for candidate A. What is the margin of error for the survey?

A ±1.8%　　　B ±2.2%　　　C ±3.6%　　　D ±4.5%

FINDING SAMPLE SIZES Find the sample size required to achieve the given margin of error. Round your answer to the nearest whole number.

15. ±3%　　　16. ±8%　　　17. ±10%　　　18. ±4.2%

19. ±5.6%　　20. ±1.5%　　21. ±6.5%　　22. ±2.5%

23. ★ **TAKS REASONING** The margin of error for a poll is ±2%. What is the size of the sample?

A 200　　　B 400　　　C 1000　　　D 2500

24. **ERROR ANALYSIS** In a survey of high school students, 13% said that they play basketball regularly. The margin of error is ±4%. *Describe* and correct the error in calculating the sample size.

$$\pm 0.13 = \pm \frac{1}{\sqrt{n}}$$
$$0.0169 = \frac{1}{n}$$
$$n \approx 59$$

25. **REASONING** A survey claims the percent of a city's residents that favor building a new football stadium is likely between 52.3% and 61.7%. How many people were surveyed?

26. **CHALLENGE** Suppose a random sample of size n is required to produce a margin of error of $\pm E$. Write an expression in terms of n for the sample size needed to reduce the margin of error to $\pm \frac{1}{2}E$. By how many times must the sample size be increased in order to cut the margin of error in half?

PROBLEM SOLVING

27. **VACATION SURVEY** In a survey of 439 teenagers in the United States, 14% said that they worked during their summer vacation.

a. What is the margin of error for the survey?

b. Give an interval that is likely to contain the exact percent of all U.S. teenagers who worked during their summer vacation.

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28. **NEWSLETTER** The staff for a student newsletter wants to conduct a survey of students' favorite TV shows. There are 1225 students in the school. The newsletter staff would like to survey 250 students. *Describe* a method for selecting an unbiased, random sample of students.

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○ = **WORKED-OUT SOLUTIONS**
on p. WS1

★ = **TAKS PRACTICE AND REASONING**