LESSON MAKER PRO

Sample Size Sleuth

Use a sample to estimate a population.

GRADE 7 · MT.7.SP.1

MT.7.SP.1 "Understand statistics can be used to gain information about a population by examining a representative sample of the population."

NAME _____ DATE _____

FROM SAMPLE TO POPULATION

A random sample can help you estimate what is true for a larger group. Find the fraction of the sample with a trait, then multiply that fraction by the population size.

WORKED EXAMPLE

A random sample is shown. About how many of 140 people would choose a skateboard?

CHOICE

Choice	People
Skateboard	7
Other	13

1. Sample size: 7 + 13 = 20.
2. Fraction choosing a skateboard: 7/20.
3. Estimate: 140 × 7/20 = 49.

Answer: About 49 people.

PRACTICE 4 problems

1 Of 30 randomly selected students, 12 bike to school. About how many of 300 students bike to school?

ANSWER _____

2 Of 40 randomly selected gamers, 14 prefer puzzle games. About how many of 200 gamers prefer them?

ANSWER _____

3 Of 50 randomly selected students, 18 bring lunch. What fraction bring lunch? About how many of 500 students bring lunch?

ANSWER _____

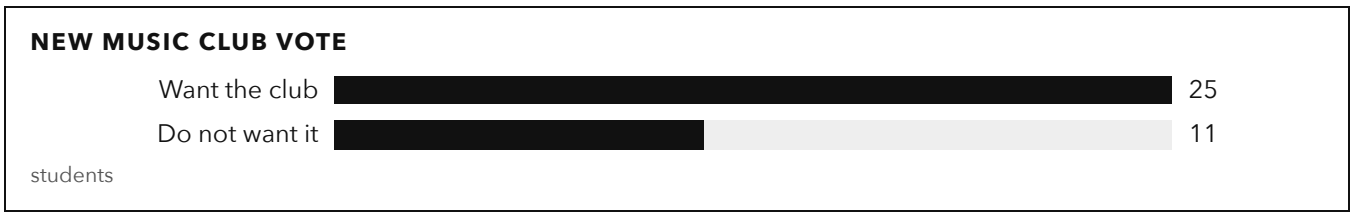
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4 In two random samples of 40 students each, 10 and 14 students want a longer lunch. Use both samples to estimate how many of 800 students want a longer lunch.

ANSWER _____

APPLY IT Show your work

1 A school has 360 students. A random sample voted on a new music club. Use the graph to estimate how many students want the club.



ANSWER _____

2 A town has 480 seventh graders. A random sample chose a favorite weekend plan. Use the table to estimate how many favor movie night.

FAVORITE WEEKEND PLAN

Plan	Students
Movie night	11
Other	21

ANSWER _____

CHALLENGE One step up

A game store asks 30 customers about a new game, and 24 want it. A random sample of 50 teens in town finds 15 want it. Which sample should you use to estimate how many of the town's 900 teens want the game? Give your estimate and explain.

WORK SPACE AND ANSWER

ANSWER KEY

Sample Size Sleuth

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Of 30 randomly selected students, 12 bike to school. About how many of 300 students bike to school?	**About 120 students.**
2	Of 40 randomly selected gamers, 14 prefer puzzle games. About how many of 200 gamers prefer them?	**About 70 gamers.**
3	Of 50 randomly selected students, 18 bring lunch. What fraction bring lunch? About how many of 500 students bring lunch?	**9/25; about 180 students.**
4	In two random samples of 40 students each, 10 and 14 students want a longer lunch. Use both samples to estimate how many of 800 students want a longer lunch.	**About 240 students.**

PART 2 · APPLY IT

1. **About 250 students.** The sample has 36 students. Multiply 25/36 by 360 to get 250.
2. **About 165 seventh graders.** The sample has 32 students. Multiply 11/32 by 480 to get 165.

CHALLENGE

Use the random sample of teens. The store's customers may be more interested in games than other teens. The estimate is 15/50 × 900 = 270 teens.

Accept equivalent fractions and estimates with or without the word "about." For the challenge, accept any clear explanation that store customers may not represent all teens in town.