

Sample Signal

Use data to predict what a population may be like.

GRADE 7 • 7.PR.6.6

7.PR.6.6 "Use appropriate graphical displays and numerical summaries from data distributions with categorical or quantitative (numerical) variables as probability models to draw informal inferences about two samples or populations."

NAME _____

DATE _____

READ THE SAMPLE

A frequency table or bar graph can show category counts. Divide a category count by the total count to make a probability model. For numerical data, compare medians for typical values and ranges for spread.

WORKED EXAMPLE

A survey table shows that 18 of 30 students prefer biking to school. Use the sample as a model for the school.

1. Total students surveyed: 30.
2. Students who prefer biking: 18.
3. $18/30 = 3/5$.

Answer: The model is $3/5$, so about 3 of every 5 students may prefer biking.

PRACTICE 5 problems

- 1** A frequency table shows: walk 14, bus 21, car 7. What is $P(\text{bus})$?

ANSWER _____

- 2** In Sample A, 12 of 24 students chose comics. In Sample B, 10 of 25 students chose comics. Which population is more likely to choose comics?

ANSWER _____

- 3** Sample A has a median reading time of 8 minutes. Sample B has a median reading time of 12 minutes. What can you infer?

ANSWER _____

- 4** Sample A has values 10, 14, 16, 20. Sample B has values 11, 13, 17, 19. Which sample is more consistent?

ANSWER _____

- 5** At Garden A, 8 of 22 plants are tomatoes. At Garden B, 12 of 22 plants are tomatoes. Which garden population is more likely to have a tomato plant?

ANSWER _____

APPLY IT Show your work

- 1** Two schools survey students about joining an after-school game club. At School A, 24 of 40 students would join. At School B, 22 of 44 students would join. Which school's student population is more likely to join?

WORK SPACE

ANSWER _____

- 2** Two music groups record weekly practice times. Group X has a median of 26 minutes and a range of 14 minutes. Group Y has a median of 31 minutes and a range of 12 minutes. What can you infer about the two groups?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Two random samples report interest in a school art night. In Sample A, 14 of 20 students are interested. In Sample B, 16 of 32 students are interested. Which population is more likely to be interested? Explain using probabilities.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A frequency table shows: walk 14, bus 21, car 7. What is $P(\text{bus})$?	$1/2$
2	In Sample A, 12 of 24 students chose comics. In Sample B, 10 of 25 students chose comics. Which population is more likely to choose comics?	Population A, because $12/24$ is greater than $10/25$.
3	Sample A has a median reading time of 8 minutes. Sample B has a median reading time of 12 minutes. What can you infer?	Population B likely has a longer typical reading time.
4	Sample A has values 10, 14, 16, 20. Sample B has values 11, 13, 17, 19. Which sample is more consistent?	Sample B, because its range is 8 and Sample A's range is 10.
5	At Garden A, 8 of 22 plants are tomatoes. At Garden B, 12 of 22 plants are tomatoes. Which garden population is more likely to have a tomato plant?	Garden B, because $12/22$ is greater than $8/22$.

PART 2 • APPLY IT

- School A, because $24/40 = 3/5$ and $22/44 = 1/2$.** Find each sample proportion. Compare $3/5$ and $1/2$.
- Group Y likely practices longer typically and has more consistent practice times.** Compare medians for typical time and ranges for consistency. Group Y has the higher median and smaller range.

CHALLENGE

Population A is more likely to be interested because $14/20 = 7/10$ and $16/32 = 1/2$, and $7/10$ is greater than $1/2$.

Accept equivalent fractions and correct comparisons. Accept informal inference language such as likely, may, or probably when students connect it to the sample data.