

Grade 7 - Random Sampling and Inference - Quiz

Common Core 7.SP.A.1, 7.SP.A.2 · maths-pdf.fr/en/

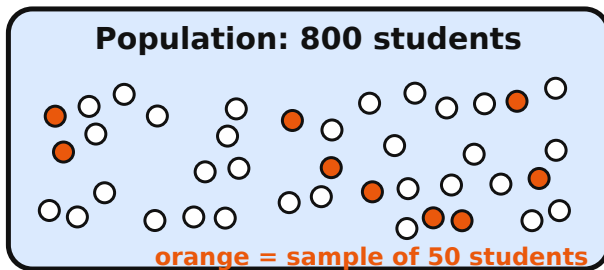
Name: _____ Class: _____ Date: ____/____/____

Answer all 10 multiple-choice questions on populations and samples, representative and biased samples, random sampling, and using samples to estimate a population. Pick the single best answer, then read the explanation to see why it is right and which common mistake each wrong choice shows. A score of 8 or more means you are ready for the test.

Grade 7 · Common Core State Standards: **7.SP.A.1, 7.SP.A.2**

Questions

Question 1



In a survey of 50 of the 800 students at a school,

what is the population?

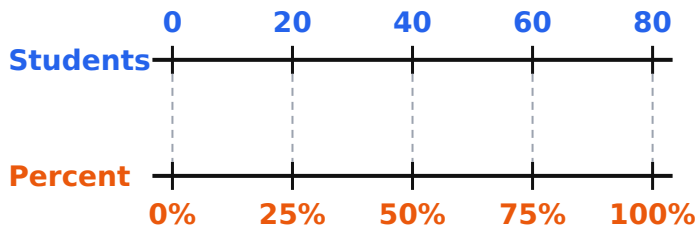
- A. The 50 students
- B. The school building
- C. The answers
- D. All 800 students

Question 2

Which sample is random?

- A. Names drawn from a hat of all members
- B. The first 20 people to volunteer
- C. Friends of the survey writer
- D. People at one lunch table

Question 3



In a random sample of 80 students, 20 ride the bus. About what percent of all students ride the bus?

- A. 20%
- B. 25%
- C. 4%
- D. 80%

Question 4

A random sample of 100 shows 35% prefer cats. About how many of 2,000 people prefer cats?

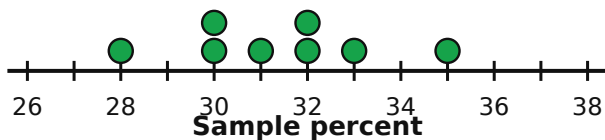
- A. 35
- B. 700
- C. 350
- D. 1,300

Question 5

Which is more likely to be representative?

- A. A random sample of 200
- B. A random sample of 5
- C. A sample of friends
- D. A sample of the first 20 volunteers

Question 6



Why might two random samples of the same size give different results?

- A. The first one was biased
- B. Sampling variability
- C. Samples are never random
- D. The population changed

Question 7

A survey question asks, 'Isn't the new rule unfair?' This question is:

- A. Fair and neutral
- B. Random
- C. Biased because of its wording
- D. A population

Question 8

A sample of 20 marbles from a bag has 6 blue. If the bag has 300 marbles, about how many are blue?

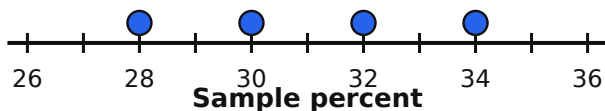
- A. 60
- B. 6
- C. 120
- D. 90

Question 9

The tag-and-recapture method tags 20 fish; a later sample of 50 has 4 tagged. About how many fish are in the lake?

- A. 200
- B. 80
- C. 250
- D. 1,000

Question 10



Sample percents of 28%, 32%, 30%, and 34% are found. About what percent is the best estimate of the population?

- A. 31%
- B. 28%
- C. 34%
- D. 100%

Answers

1. **D** - The population is the entire group being studied.
2. **A** - Only drawing from everyone gives each member an equal chance.
3. **B** - $20 \div 80 = 0.25$.
4. **B** - $0.35 \times 2000 = 700$.
5. **A** - Larger random samples are less variable and not biased.
6. **B** - Chance causes the results of random samples to vary.
7. **C** - Leading questions push respondents toward one answer.
8. **D** - $6 \div 20 = 0.3$, and $0.3 \times 300 = 90$.
9. **C** - $4 \div 50 = 0.08$, and $20 \div 0.08 = 250$.
10. **A** - The mean of the samples is $(28+32+30+34) \div 4 = 31$.

Remember

- A population is the whole group; a sample is a part of it.
- A random sample gives every member an equal chance of being chosen.
- Biased samples over-represent some members and give poor estimates.
- Estimate a population count by multiplying the sample proportion by the population size.
- Larger random samples vary less and give better estimates.