Bias in Data Collection and Determining the Sample Size

Complete each statement by typing in the correct answer. Complete each statement with a full stop.

1. One of the potential problems with drawing conclusions from a sample that is too small is that
   A) It ensures accurate results
   B) It increases credibility
   C) It may not be representative of the population
   D) It eliminates bias

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2. A sample that fails to include all parts of the population proportionally is subject to
A) Random error
B) Under coverage
C) Voluntary bias
D) Over sampling

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3. Which of the following is an example of **voluntary response bias**?
A) Sampling every 10th person on a list
B) Surveying people who opt into a study
C) Choosing people randomly from a full list
D) Including every student in a school

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4. Selection bias is most likely to occur when
A) All members of a population are surveyed
B) A random sample is selected
C) The sample is not representative of the population
D) The population size is too large

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5. Which of the following best describes **non-response bias**?
A) The data is gathered using volunteers
B) Some selected individuals do not participate
C) Everyone responds to the survey
D) Too many questions are asked

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6. Which sampling method helps eliminate bias?
A) Sampling only from volunteers
B) Sampling from a convenient location
C) Random sampling
D) Asking people you know

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7. If a sample is not randomly selected, it will likely be
A) Larger than needed
B) Too random to analyze
C) Biased
D) Statistically sound

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8. The main goal of a **representative sample** is
A) To include only interested individuals
B) To save time
C) To reflect the characteristics of the whole population
D) To avoid using statistical tools

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9. What formula helps estimate an appropriate sample size?
A) $N \div 2$
B) $\sqrt{N}$
C) $N + 1$
D) $N \times 2$

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10. Why is a sample that is too small problematic?
A) It uses too much data
B) It always leads to selection bias
C) It may not provide reliable conclusions
D) It is easier to interpret

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11. Generalising from a sample that is too _____ may lead to conclusions that lack credibility.

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12. A good sample should be _____ of the population.

13. Sampling from select groups without including the same _____ from all population groups introduces bias.

14. A sample that includes only readily available data may introduce _____.

15. The bias that results from an unrepresentative sample is called _____ bias.

16. _____ coverage occurs when some members of the population are inadequately represented.

17. When people chosen for a study choose not to respond, this is called _____ bias.

18. Voluntary response bias happens when the sample consists of _____ participants.

19. The number of people chosen from a population for study is known as the _____ size.

20. If the sample size is too small, the results are less _____.

21. How do I calculate the sample size of a school a population of 625 students?

a/ 625/2 b/ $\sqrt{625}$ c/ 625^2 d/ $\sqrt{625} \times 2$ e/ 625×2

22. A company wants to survey its 10,000 employees. Using the square root rule, what is the smallest sample size that should be used?

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23. For a population of 1,600 customers, what sample size should be chosen to ensure reliable data?

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24. If a survey is to be conducted on a population of 2,500 households, what is the appropriate minimum sample size?

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25. A town has a population of 900 people. What is the minimum recommended sample size?

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