

Statistical Questions

Name: _____ Date: _____ Score: _____ / 24

Q Quick Review

A **statistical question** is one that you expect to have a **variety of answers** — the data will *vary*. “How tall are the students in my class?” is statistical, because different students have different heights. A **non-statistical question** has just one sure answer: “How tall is the teacher?” has only one value. The key idea is **variability** — if the answers spread out, the question is statistical. Good statistical questions also describe a clear **group** (the students in my class) and one clear **measurement** (height).

◇ **Example:** Is “How many minutes did each student in Grade 6 sleep last night?” a statistical question? Explain.
 ⇒ Let’s think about what answers we would collect. We would ask many Grade 6 students, and each one would probably give a different number of minutes — some slept 480, some 540, some 420. Because the answers *vary* from student to student, this question is statistical. It also names a clear group (Grade 6 students) and one clear measurement (minutes of sleep), which are both signs of a well-built statistical question.

Answer: Yes — statistical (answers vary across students)

PRACTICE

Decide if each question is statistical or non-statistical.

- | | |
|---|---|
| 1. How old am I today? _____ | 12. How many books did each Grade 6 student read this year? _____ |
| 2. How old are the students in my class? _____ | 13. How many letters are in my first name? _____ |
| 3. What is the height of the Eiffel Tower? _____ | 14. How many letters are in the first names of my classmates? _____ |
| 4. How tall are the trees in the school yard? _____ | 15. What is today’s date? _____ |
| 5. How many pets does my best friend own? _____ | 16. How far do students travel to get to school? _____ |
| 6. How many pets do the families on my street own? _____ | 17. What is the boiling point of water at sea level? _____ |
| 7. What time does the sun rise tomorrow? _____ | 18. How many minutes do Grade 6 students spend on homework? _____ |
| 8. What time do students in Grade 6 wake up on school days? _____ | 19. How many siblings do I have? _____ |
| 9. How much does this bag of apples weigh? _____ | 20. What are the shoe sizes of the players on the team? _____ |
| 10. How much do the backpacks in my class weigh? _____ | |
| 11. What is the population of my hometown? _____ | |

◆ Word Problems

21. Maria wants to learn about reading habits in her class. She asks, “How many minutes did each classmate read yesterday?” Is this a good statistical question? Explain. _____
22. A coach asks, “How tall is the tallest player on our team?” He thinks this is a statistical question. Is he right? _____
23. Devon surveys his neighborhood and records the number of cars each household owns: 1, 2, 0, 3, 2, 1. What statistical question could have produced this data? _____
24. Lena wants to rewrite the non-statistical question “How long is my pencil?” so that it becomes statistical. Write one possible statistical question for her. _____



Answer Keys

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| <p>1. <input type="text" value="non-statistical"/></p> <p>2. <input type="text" value="statistical"/></p> <p>3. <input type="text" value="non-statistical"/></p> <p>4. <input type="text" value="statistical"/></p> <p>5. <input type="text" value="non-statistical"/></p> <p>6. <input type="text" value="statistical"/></p> <p>7. <input type="text" value="non-statistical"/></p> <p>8. <input type="text" value="statistical"/></p> <p>9. <input type="text" value="non-statistical"/></p> <p>10. <input type="text" value="statistical"/></p> <p>11. <input type="text" value="non-statistical"/></p> <p>12. <input type="text" value="statistical"/></p> | <p>13. <input type="text" value="non-statistical"/></p> <p>14. <input type="text" value="statistical"/></p> <p>15. <input type="text" value="non-statistical"/></p> <p>16. <input type="text" value="statistical"/></p> <p>17. <input type="text" value="non-statistical"/></p> <p>18. <input type="text" value="statistical"/></p> <p>19. <input type="text" value="non-statistical"/></p> <p>20. <input type="text" value="statistical"/></p> <p>21. <input type="text" value="Yes — it is statistical"/></p> <p>22. <input type="text" value="No — it is non-statistical"/></p> <p>23. <input type="text" value="How many cars does each household on my street own?"/></p> <p>24. <input type="text" value="How long are the pencils in my classroom?"/></p> |
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Step-by-Step Explanations

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| <p>1. This has just one sure answer — your own age — so the data does not vary.</p> <p>2. Different students are different ages, so the answers vary — that makes it statistical.</p> <p>3. The Eiffel Tower has one fixed height, so there is only one answer.</p> <p>4. Trees come in many heights, so you expect a variety of answers.</p> <p>5. One friend has one count of pets — a single answer, so it is not statistical.</p> <p>6. Each family may own a different number of pets, so the data varies.</p> <p>7. There is one sunrise time tomorrow, so the answer does not vary.</p> <p>8. Students wake up at many different times, so you expect a variety of answers.</p> <p>9. One bag has one weight — a single, fixed answer.</p> <p>10. Backpacks have different weights, so the data will vary across students.</p> <p>11. At a given moment a town has one population count, so there is one answer.</p> <p>12. Different students read different numbers of books, so the answers vary.</p> <p>13. Your name has a fixed number of letters — just one answer.</p> <p>14. Classmates' names have different lengths, so you collect a variety of values.</p> <p>15. There is exactly one date today, so the answer does not vary.</p> | <p>16. Students live different distances away, so the travel data varies.</p> <p>17. This is a fixed scientific value — one answer for everyone.</p> <p>18. Homework time differs from student to student, so the data varies.</p> <p>19. You have one fixed number of siblings, so there is a single answer.</p> <p>20. Players wear many different shoe sizes, so the answers spread out.</p> <p>21. Different classmates read for different amounts of time, so the answers vary. The question also names a clear group (her classmates) and one clear measurement (minutes read), so it is a strong statistical question.</p> <p>22. There is only one tallest player and one height, so the question has a single answer with no variability. A statistical version would be "How tall are the players on our team?"</p> <p>23. The data is a list of varying counts collected from a clear group (households on the street) about one measurement (number of cars), so a matching statistical question asks about that group and measurement.</p> <p>24. To make it statistical, change it from one object to a group of objects. Asking about all the pencils in the classroom gives many different lengths, so the answers vary.</p> |
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