

# 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.

- How old am I today? \_\_\_\_\_
- How old are the students in my class? \_\_\_\_\_
- What is the height of the Eiffel Tower? \_\_\_\_\_
- How tall are the trees in the school yard? \_\_\_\_\_
- How many pets does my best friend own? \_\_\_\_\_
- How many pets do the families on my street own? \_\_\_\_\_
- What time does the sun rise tomorrow? \_\_\_\_\_
- What time do students in Grade 6 wake up on school days? \_\_\_\_\_
- How much does this bag of apples weigh? \_\_\_\_\_
- How much do the backpacks in my class weigh? \_\_\_\_\_
- What is the population of my hometown? \_\_\_\_\_
- How many books did each Grade 6 student read this year? \_\_\_\_\_
- How many letters are in my first name? \_\_\_\_\_
- How many letters are in the first names of my classmates? \_\_\_\_\_
- What is today’s date? \_\_\_\_\_
- How far do students travel to get to school? \_\_\_\_\_
- What is the boiling point of water at sea level? \_\_\_\_\_
- How many minutes do Grade 6 students spend on homework? \_\_\_\_\_
- How many siblings do I have? \_\_\_\_\_
- What are the shoe sizes of the players on the team? \_\_\_\_\_

## ◆ Word Problems

- 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. \_\_\_\_\_
- A coach asks, “How tall is the tallest player on our team?” He thinks this is a statistical question. Is he right? \_\_\_\_\_
- 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? \_\_\_\_\_
- 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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|---|---|
| <ol style="list-style-type: none"> <li>1. <input type="text" value="non-statistical"/></li> <li>2. <input type="text" value="statistical"/></li> <li>3. <input type="text" value="non-statistical"/></li> <li>4. <input type="text" value="statistical"/></li> <li>5. <input type="text" value="non-statistical"/></li> <li>6. <input type="text" value="statistical"/></li> <li>7. <input type="text" value="non-statistical"/></li> <li>8. <input type="text" value="statistical"/></li> <li>9. <input type="text" value="non-statistical"/></li> <li>10. <input type="text" value="statistical"/></li> <li>11. <input type="text" value="non-statistical"/></li> <li>12. <input type="text" value="statistical"/></li> </ol> | <ol style="list-style-type: none"> <li>13. <input type="text" value="non-statistical"/></li> <li>14. <input type="text" value="statistical"/></li> <li>15. <input type="text" value="non-statistical"/></li> <li>16. <input type="text" value="statistical"/></li> <li>17. <input type="text" value="non-statistical"/></li> <li>18. <input type="text" value="statistical"/></li> <li>19. <input type="text" value="non-statistical"/></li> <li>20. <input type="text" value="statistical"/></li> <li>21. <input type="text" value="Yes — it is statistical"/></li> <li>22. <input type="text" value="No — it is non-statistical"/></li> <li>23. <input type="text" value="“How many cars does each household on my street own?”"/></li> <li>24. <input type="text" value="“How long are the pencils in my classroom?”"/></li> </ol> |
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### Step-by-Step Explanations

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|--|---|
| <ol style="list-style-type: none"> <li>1. This has just one sure answer — your own age — so the data does not vary.</li> <li>2. Different students are different ages, so the answers vary — that makes it statistical.</li> <li>3. The Eiffel Tower has one fixed height, so there is only one answer.</li> <li>4. Trees come in many heights, so you expect a variety of answers.</li> <li>5. One friend has one count of pets — a single answer, so it is not statistical.</li> <li>6. Each family may own a different number of pets, so the data varies.</li> <li>7. There is one sunrise time tomorrow, so the answer does not vary.</li> <li>8. Students wake up at many different times, so you expect a variety of answers.</li> <li>9. One bag has one weight — a single, fixed answer.</li> <li>10. Backpacks have different weights, so the data will vary across students.</li> <li>11. At a given moment a town has one population count, so there is one answer.</li> <li>12. Different students read different numbers of books, so the answers vary.</li> <li>13. Your name has a fixed number of letters — just one answer.</li> <li>14. Classmates' names have different lengths, so you collect a variety of values.</li> <li>15. There is exactly one date today, so the answer does not vary.</li> </ol> | <ol style="list-style-type: none"> <li>16. Students live different distances away, so the travel data varies.</li> <li>17. This is a fixed scientific value — one answer for everyone.</li> <li>18. Homework time differs from student to student, so the data varies.</li> <li>19. You have one fixed number of siblings, so there is a single answer.</li> <li>20. Players wear many different shoe sizes, so the answers spread out.</li> <li>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.</li> <li>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?”</li> <li>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.</li> <li>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.</li> </ol> |
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