Statistical Questions

Statistical questions: Models and calculations

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

A statistical question anticipates variability in data collected about a group or repeated events. How many minutes do our classmates read daily? may give $10, 20, 35$ minutes. How many minutes did Jo read yesterday? asks for one fixed value, such as 20. A sample can happen to contain equal values and still answer a statistical question.

Worked example

Classify the question and explain. “How many books do students in this class read each month?” Use observations $1, 3, 5, 2$.

1. The stated data are $1, 3, 5, 2$. There are 4 observations from a group or repeated events.

2. Observed spread $= 5 - 1 = 4$; the question allows different values, even if this sample happens to have no spread.

Answer: Statistical.

Practice Problems

Show your thinking.

1. Classify this question. “What are the heights of students in our class?” Use observations $140, 148, 153$.

2. Does this ask for a variable distribution? “How old is Mina today?” Use observations 12.

3. Identify whether repeated measurements are anticipated. “How many minutes do buses take on this route each day?” Use observations $18, 21, 25$.

4. Classify this fixed-property question. “How many sides does this triangle have?” Use observations 3.

5. Classify a club survey. “How many pets do the students in our club own?” Use observations $0, 1, 3, 2$.

6. All observations match. Can the question still be statistical? “What are the shoe sizes of these four students?” Use observations $6, 6, 6, 6$.

Answer Key

1. Statistical.
2. Not statistical.
3. Statistical.
4. Not statistical.
5. Statistical.
6. Statistical.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The stated data are $140, 148, 153$. There are 3 observations from a group or repeated events.

2. Observed spread $= 153 - 140 = 13$; the question allows different values, even if this sample happens to have no spread.

Problem 2

1. The stated data are 12. There is one fixed observation about the specified case.

2. Observed spread $= 12 - 12 = 0$; the question requests one fixed result, not a variable group distribution.

Problem 3

1. The stated data are $18, 21, 25$. There are 3 observations from a group or repeated events.

2. Observed spread $= 25 - 18 = 7$; the question allows different values, even if this sample happens to have no spread.

Problem 4

1. There is one fixed observation, 3 sides, for this particular triangle.

2. Observed spread $= 3 - 3 = 0$; the question requests one fixed result, not a variable group distribution.

Problem 5

1. The stated data are $0, 1, 3, 2$. There are 4 observations from a group or repeated events.

2. Observed spread $= 3 - 0 = 3$; the question allows different values, even if this sample happens to have no spread.

Problem 6

1. The stated data are $6, 6, 6, 6$. There are 4 observations from a group or repeated events.

2. Observed spread $= 6 - 6 = 0$; the question allows different values, even if this sample happens to have no spread.

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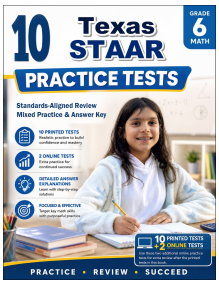

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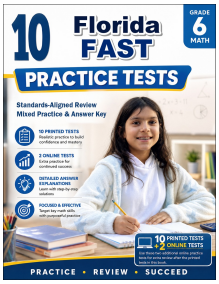

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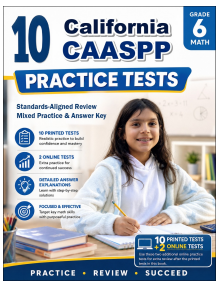

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