MSTAR PRACTICE WORKSHEET

Lesson 2-5: Describe Data by Range and Interquartile Range

Grade 6 Mathematics · Standard 6.DS.3

Name: _____ Date: _____

These are MSTAR-style questions written for this curriculum to rehearse the format. They are not official Maryland assessment items. MSTAR — Maryland's new state test, first given in spring 2027 — uses the same kinds of questions you see here: selected response, select-all, two-part evidence questions, and written responses.

Part A — Skills Check

Warm up with the lesson's core skills — one best answer each.

Question 1 SELECTED RESPONSE · 1 POINT

A data set runs from a least value of 12 to a greatest value of 30. What is the range?

(A) 12

(B) 18

(C) 21

(D) 30

Question 2 SELECTED RESPONSE · 1 POINT

On a box plot, Q1 = 20 and Q3 = 36. What is the interquartile range?

(A) 16

(B) 28

(C) 36

(D) 56

Question 3 SELECTED RESPONSE · 1 POINT

Which measure of spread uses ONLY the middle half of the data?

(A) The interquartile range

(B) The range

(C) The median

(D) The mode

Question 4 SELECTED RESPONSE · 1 POINT

Two classes both have a median score of 81. Class A's IQR is 13 and Class B's IQR is 8. Which statement is true?

(A) Class B has a higher median

(B) Class A has more students

(C) The middle half of Class B's scores is less spread out

(D) Class B's highest score is greater

Question 5 SELECTED RESPONSE · 1 POINT

A box plot shows: least 68, Q1 75.5, median 83.5, Q3 88, greatest 94. What are the range and the IQR?

(A) Range 12.5, IQR 26

(B) Range 20, IQR 12.5

(C) Range 26, IQR 12.5

(D) Range 26, IQR 83.5

Question 6 SELECTED RESPONSE · 1 POINT

Team A's salaries have a range of $14M and an IQR of $7M. Team B's have a range of $7M and an IQR of $2.5M. Both teams have the same median salary. What does this tell a player?

(A) Team B pays more overall

(B) Team B's salaries cluster much more tightly around the median

(C) Team A has more players

(D) Team B's highest salary is greater

Part B — Test-Format Questions

These match the state test's formats: two-part questions, select-all, and written responses.

Question 7 TWO-PART QUESTION

Part A

Two classes have the same median score of 81. Class A scores range from 78 to 84; Class B scores range from 60 to 99. What does this tell you?

Fill in the bubble next to the one best answer.

(A) Class B has a higher median.

(B) Class B has greater variability, even though the centers are the same.

(C) Class A has more students.

(D) The two classes performed identically.

Part B

Answer Part A before Part B — Part B asks about your reasoning.

Why is the IQR often preferred over the range as a measure of spread?

(A) The IQR is always larger than the range.

(B) The range cannot be calculated for large data sets.

(C) The IQR uses every value in the data set.

(D) The range depends on only two values and is strongly affected by an outlier.

Question 8 WRITTEN RESPONSE · 2 POINTS

Type II Reasoning: Same Center, Different Spread

> Lena compared two data sets. Both had a median of 50. She concluded: 'The two sets are the same because their medians match.'

Explain why Lena's conclusion may be wrong, and name a measure that would tell the sets apart.

Write your answer in complete sentences. Show or explain your mathematical thinking.

Part C — Show Your Thinking

Answer in writing, the way the state test's constructed responses work.

Question 9 WRITTEN RESPONSE · 2 POINTS

Two students both scored 80 on a make-up test — one joins Class A (range 28, IQR 13) and one joins Class B (range 20, IQR 8). Both classes have a median of 81. Predict how each class's IQR changes, and explain your reasoning.

Write your answer in complete sentences. Show or explain your mathematical thinking.

When you finish, check your reasoning with your teacher or family. Your teacher has the scoring guide for the written responses.