MSTAR PRACTICE WORKSHEET

Lesson 2-9: Describe Data by Mean Absolute Deviation

Grade 6 Mathematics · Standard 6.DS.6c

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

The mean of a data set is 15. One value is 11. What is the absolute deviation of that value from the mean?

(A) 4

(B) −4

(C) 11

(D) 26

Question 2 SELECTED RESPONSE · 1 POINT

A data set has absolute deviations of 3, 1, 5, 2, 4. What is the MAD?

(A) 1

(B) 3

(C) 5

(D) 15

Question 3 SELECTED RESPONSE · 1 POINT

The mean of a data set is 20. A value is 26. What is the absolute deviation?

(A) 6

(B) −6

(C) 26

(D) 46

Question 4 SELECTED RESPONSE · 1 POINT

Team A has MAD = 2.1 points. Team B has MAD = 6.8 points. Which team is more consistent?

(A) Team B — higher MAD means better performance

(B) Both are equally consistent

(C) Cannot tell from MAD alone

(D) Team A — lower MAD means scores are closer to the mean

Question 5 SELECTED RESPONSE · 1 POINT

Two runners have the same average time of 60 seconds. Runner A's MAD is 1.2 seconds. Runner B's MAD is 5.8 seconds. Which runner is the coach more likely to pick for a relay race that needs a reliable time?

(A) Runner B — higher MAD means faster potential

(B) Either — they have the same average

(C) Runner A — lower MAD means more consistent times

(D) Neither — MAD doesn't matter for relay races

Question 6 SELECTED RESPONSE · 1 POINT

A guard scored 2, 4, 6, 8 points in four scrimmages, so the mean is 5 points. The distances from the mean are 3, 1, 1, 3. What is the mean absolute deviation (MAD)?

(A) 1

(B) 2

(C) 5

(D) 8

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

A data set is 3, 5, 9, 11 with a mean of 7. What is the mean absolute deviation?

Fill in the bubble next to the one best answer.

(A) 2

(B) 3

(C) 7

(D) 28

Part B

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

Why are the DISTANCES from the mean used rather than the signed differences?

(A) Distances are easier to add.

(B) Negative numbers cannot be divided.

(C) The signed differences always add to zero, so they would give a MAD of 0 for every data set.

(D) The mean is always larger than every value.

Question 8 WRITTEN RESPONSE · 2 POINTS

Type II Reasoning: The Deviations That Cancel

> Sofia found the MAD of 3, 5, 9, 11 (mean 7). She used the signed differences −4, −2, 2, 4, added them to get 0, and concluded 'the MAD is 0, so there is no variability.'

Explain Sofia's misconception and give the correct MAD.

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 basketball teams both average 75 points per game. Team A's last 5 scores: 73, 76, 74, 77, 75. Team B's last 5 scores: 60, 90, 65, 85, 75. Calculate the MAD for each team and explain which team a coach would prefer if they need predictable scoring.

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.