MSTAR PRACTICE WORKSHEET

Lesson 8-6: Solve and Graph Inequalities

Grade 6 Mathematics · Standard 6.AT.8

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

Solve: $x + 6 > 14$

(A) $x > 8$

(B) $x < 8$

(C) $x = 8$

(D) $x > 20$

Question 2 SELECTED RESPONSE · 1 POINT

Solve: $x - 9 \leq 3$

(A) $x \leq 6$

(B) $x \leq 12$

(C) $x \geq 12$

(D) $x = 12$

Question 3 SELECTED RESPONSE · 1 POINT

Solve: $x + 10 \geq 25$

(A) $x \geq 15$

(B) $x \leq 15$

(C) $x = 15$

(D) $x \geq 35$

Question 4 SELECTED RESPONSE · 1 POINT

Solve: $x - 4 < 11$

(A) $x < 7$

(B) $x < 15$

(C) $x > 15$

(D) $x = 15$

Question 5 SELECTED RESPONSE · 1 POINT

Is $x = 5$ a solution to $x + 4 > 12$?

(A) No, because $5 + 4 = 9$, and 9 is not greater than 12

(B) Yes, because $5 + 4 = 9$

(C) Yes, because $5 > 4$

(D) No, because $5 < 12$

Question 6 SELECTED RESPONSE · 1 POINT

Clue 1: Which value is a solution of $x > 7$?

(A) 3

(B) 5

(C) 7

(D) 9

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

Solve $n - 6 > 9$. Which number line shows the solution set?

Fill in the bubble next to the one best answer.

(A) An open circle at 3 with shading to the right

(B) An open circle at 15 with shading to the right

(C) A closed circle at 15 with shading to the right

(D) An open circle at 15 with shading to the left

Part B

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

Which reasoning supports that graph?

(A) Adding 6 to both sides gives $n > 15$, and $>$ leaves the boundary point unfilled with shading toward the larger numbers.

(B) Subtracting 6 from both sides gives $n > 3$, and $>$ leaves the boundary point unfilled.

(C) Adding 6 to both sides gives $n > 15$, and the circle is filled in because 15 makes the inequality true.

(D) Adding a number to both sides reverses the inequality symbol, so the shading points to the left.

Question 8 WRITTEN RESPONSE · 2 POINTS

Type II Reasoning: Subtracting Away a Coefficient

> Tomas solved $3x \leq 18$. He wrote: '$3x \leq 18$, so $x \leq 18 - 3$, which gives $x \leq 15$.' He then drew a closed circle at 15 and shaded to the left.

Explain Tomas's misconception and give the correct solution and graph.

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

A detective has a budget of at most $100 for supplies. She already spent $37 on gloves. Write an inequality for the remaining amount r she can spend, solve it, graph it, and name three possible values for r.

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.