MSTAR PRACTICE WORKSHEET

# Lesson 8-5: Understand Inequalities and Their Solutions

Grade 6 Mathematics · Standard 6.AT.9

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

Which graph represents $x < 5$?

(A) Open circle at 5, shaded left

(B) Closed circle at 5, shaded left

(C) Open circle at 5, shaded right

(D) Closed circle at 5, shaded right

**Question 2** SELECTED RESPONSE · 1 POINT

Which graph represents $x \geq 3$?

(A) Closed circle at 3, shaded right

(B) Open circle at 3, shaded right

(C) Closed circle at 3, shaded left

(D) Open circle at 3, shaded left

**Question 3** SELECTED RESPONSE · 1 POINT

Which graph represents $x > 8$?

(A) Open circle at 8, shaded right

(B) Closed circle at 8, shaded right

(C) Open circle at 8, shaded left

(D) Closed circle at 8, shaded left

**Question 4** SELECTED RESPONSE · 1 POINT

Which graph represents $x \leq 10$?

(A) Closed circle at 10, shaded left

(B) Open circle at 10, shaded left

(C) Closed circle at 10, shaded right

(D) Open circle at 10, shaded right

**Question 5** SELECTED RESPONSE · 1 POINT

A number line shows a closed circle at 8 and is shaded to the left. Which inequality does this represent?

(A) $x \leq 8$

(B) $x < 8$

(C) $x \geq 8$

(D) $x > 8$

**Question 6** SELECTED RESPONSE · 1 POINT

Clue: the witness ran more than 15 feet, so $d > 15$. On the number line, what do you draw?

(A) Open circle at 15, shade right

(B) Closed circle at 15, shade right

(C) Open circle at 15, shade left

(D) Closed circle at 15, shade left

## 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 number line shows an open circle at 7, and the shading covers the numbers to the right of 7. Which inequality does this graph represent?

*Fill in the bubble next to the one best answer.*

(A) $x > 7$

(B) $x \geq 7$

(C) $x < 7$

(D) $x \leq 7$

### Part B

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

Why is the circle at 7 open instead of closed?

(A) An open circle is used whenever the shading points to the right.

(B) An open circle shows that 7 is included in the solution set.

(C) The symbol > does not include 7, so 7 is not in the solution set and the boundary point stays unfilled.

(D) Every inequality graph uses an open circle at its boundary point.

**Question 8** SELECT ALL THAT APPLY

Select ALL numbers that belong to the solution set of $y \leq 12$.

*Mark the box next to EVERY answer that is true. More than one is correct.*

[A] 12

[B] 11.5

[C] 12.5

[D] 0

[E] 20

## Part C — Show Your Thinking

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

**Question 9** WRITTEN RESPONSE · 2 POINTS

A theme park has two rides. Ride A requires height $h > 48$ inches. Ride B requires height $h \geq 48$ inches. A child is exactly 48 inches tall. Which ride can they go on? Explain using number line graphs for both inequalities.

*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.