LESSON MAKER PRO

Inequality Pathways

Write and graph sets of endless solutions.

GRADE 6 · 6.PAR.7.4

6.PAR.7.4 "Recognize and generate inequalities of the form x > c, x ≥ c, x ≤ c, or x < c to explain situations that have infinitely many solutions; represent solutions of such inequalities on a number line."

NAME _____ DATE _____

SHOW THE SOLUTION SET

An inequality shows a set of numbers, so it has infinitely many solutions. On a number line, use an open circle for < or > and a closed circle for ≤ or ≥. Shade left for smaller values and right for greater values.

WORKED EXAMPLE

Graph x > 20 on the number line.

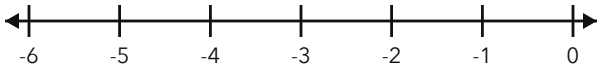


1. Find the boundary number, 20.
2. Because > does not include 20, draw an open circle at 20.
3. Shade to the right because the solutions are greater than 20.

Answer: Open circle at 20; shade to the right.

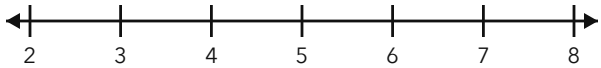
PRACTICE 6 problems

1 Graph x ≤ -3 on the number line.



ANSWER _____

2 Graph x < 5 on the number line.



ANSWER _____

3 A number x is at least 12. Write an inequality.

ANSWER _____

4 A number x is less than -1. Write an inequality.

ANSWER _____

5 Write the inequality whose solutions are all numbers greater than -8.

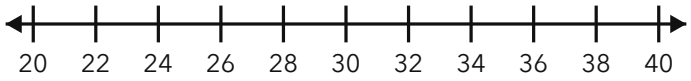
ANSWER _____

6 Write an inequality whose smallest whole-number solution is 6.

ANSWER _____

APPLY IT Show your work

1 Jay is collecting points in a coding app to unlock a new avatar. He needs at least 30 points. Let x be his number of points. Write an inequality and graph it on the number line.



ANSWER _____

2 A student film festival accepts videos shorter than 90 seconds. Let x be a video length in seconds. Write an inequality, then describe its number-line graph.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game's practice mode is available for every whole-number level from 14 on. It is not available at level 13. Let x be a level number. Write an inequality, graph it on the number line, and explain why it fits the situation.



WORK SPACE AND ANSWER

ANSWER KEY

Inequality Pathways

GRADE 6 · 6.PAR.7.4

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Graph x ≤ -3 on the number line.	**Closed circle at -3; shade to the left.**
2	Graph x < 5 on the number line.	**Open circle at 5; shade to the left.**
3	A number x is at least 12. Write an inequality.	**x ≥ 12**
4	A number x is less than -1. Write an inequality.	**x < -1**
5	Write the inequality whose solutions are all numbers greater than -8.	**x > -8**
6	Write an inequality whose smallest whole-number solution is 6.	**x ≥ 6**

PART 2 · APPLY IT

1. **x ≥ 30; closed circle at 30, shade to the right.** The words at least mean 30 is included. All point totals greater than 30 also work.
2. **x < 90; open circle at 90, shade to the left.** Shorter than means 90 is not included. Every length less than 90 seconds is a solution.

CHALLENGE

x ≥ 14; closed circle at 14, shade to the right. The inequality includes 14 and every greater whole-number level, but 13 is less than 14.

Accept equivalent wording for graph descriptions, such as filled circle for closed circle. For each graph, the endpoint type and the shading direction must both be correct.