LESSON MAKER PRO

# Inequality Graph Detectives

*Read each number line, then write matching inequality symbols.*

**GRADE 6 · 6.PFA.4.a**

**6.PFA.4.a** "Given the graph of a linear inequality in one variable on a number line, represent the inequality in two equivalent ways (e.g., x < -5 or -5 > x) using symbols. Symbols include <, >, ≤, ≥."

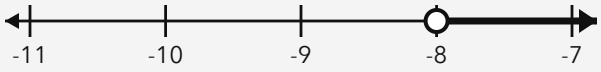
NAME _____ DATE _____

## READ THE ENDPOINT AND SHADING

An open circle means the endpoint is not included, and a closed circle means the endpoint is included. Shading to the right shows greater values, and shading to the left shows smaller values.

### WORKED EXAMPLE

Write the inequality shown on the number line in two equivalent ways.

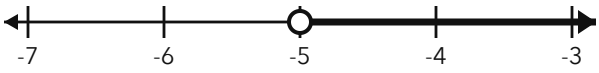



1. The circle at -8 is open, so -8 is not included.
2. The shading goes right, so the values are greater than -8.
3. Write the inequality with x first or with -8 first.

**Answer: x > -8 or -8 < x**

## PRACTICE 6 problems

**1** Write the inequality shown on the number line in two equivalent ways.




**ANSWER** _____

_____

**2** Write the inequality shown on the number line in two equivalent ways.




**ANSWER** _____

_____

**3** Look back at the number line in Problem 1. Write the inequality with x first.

**ANSWER** _____

**4** Look back at the number line in Problem 1. Write the same inequality with the number first.

**ANSWER** _____

**5** Look back at the number line in Problem 2. Write the inequality with x first.

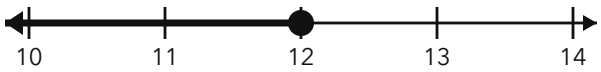
**ANSWER** _____

**6** Look back at the number line in Problem 2. Write the same inequality with the number first.

**ANSWER** _____

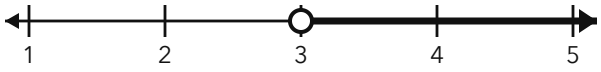
## APPLY IT Show your work

**1** For a library reading challenge, x is the number of books a student may borrow at one time. The number line shows the allowed numbers. Write the inequality in two equivalent ways.




**ANSWER** _____

**2** For a gaming club final, x is the number of practice wins a player needs. The number line shows the qualifying numbers. Write the inequality in two equivalent ways.




**ANSWER** _____

## CHALLENGE One step up

A student says the graph in the first Apply problem means x < 12. Explain the mistake, then write the correct inequality in both equivalent ways.

WORK SPACE AND ANSWER

**ANSWER KEY**

# Inequality Graph Detectives

**GRADE 6 · 6.PFA.4.a**

## PART 1 · PRACTICE

| # | PROBLEM | ANSWER |
|---|---|---|
| 1 | Write the inequality shown on the number line in two equivalent ways. | **x > -5 or -5 < x** |
| 2 | Write the inequality shown on the number line in two equivalent ways. | **x ≤ 4 or 4 ≥ x** |
| 3 | Look back at the number line in Problem 1. Write the inequality with x first. | **x > -5** |
| 4 | Look back at the number line in Problem 1. Write the same inequality with the number first. | **-5 < x** |
| 5 | Look back at the number line in Problem 2. Write the inequality with x first. | **x ≤ 4** |
| 6 | Look back at the number line in Problem 2. Write the same inequality with the number first. | **4 ≥ x** |

## PART 2 · APPLY IT

1. **x ≤ 12 or 12 ≥ x** The closed endpoint includes 12, and the shading to the left shows values less than 12. Use ≤, then reverse the order and reverse the symbol.
2. **x > 3 or 3 < x** The open endpoint does not include 3, and the shading to the right shows values greater than 3. Use >, then write the equivalent form with 3 first.

## CHALLENGE

**The circle is closed, so 12 is included. The correct inequalities are x ≤ 12 and 12 ≥ x.**

Accept either equivalent order when the inequality symbol is reversed correctly. A closed endpoint must use ≤ or ≥, and an open endpoint must use < or >.