LESSON MAKER PRO

Inequality Boundary Hunt

Write and graph greater-than and less-than rules.

GRADE 6 · 6.EE.B.8

CCSS.Math.Content.6.EE.B.8 "Write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form x > c or x < c have infinitely many solutions..."

NAME _____ DATE _____

OPEN CIRCLES, ENDLESS SOLUTIONS

An inequality compares x to a boundary number. Use an open circle at the boundary because x is not equal to that number. Shade right for x > c and shade left for x < c, because the solutions keep going forever.

WORKED EXAMPLE

A service club requires more than 13 volunteer hours. Let x be the number of hours. Write an inequality and graph it on the number line.

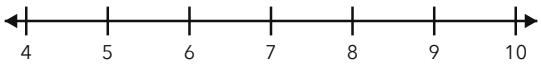


1. More than means greater than.
2. Write x > 13.
3. Put an open circle at 13.
4. Shade to the right.

Answer: x > 13; open circle at 13 and shade to the right.

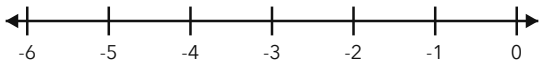
PRACTICE 6 problems

1 Use the number line to graph x > 7.



ANSWER _____

2 Use the number line to graph x < -3.



ANSWER _____

3 The water temperature x is below 28 degrees. Write an inequality.

ANSWER _____

4 A game accepts players whose age x is greater than 10. Write an inequality.

ANSWER _____

5 A shelf holds fewer than 35 books. Let x be the number of books on the shelf. Write an inequality.

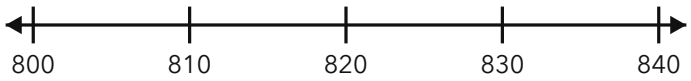
ANSWER _____

6 Maya says x > 6 has only positive whole-number solutions. Is Maya correct? Explain, and give two solutions that are not whole numbers.

ANSWER _____

APPLY IT Show your work

1 To join an advanced gaming tournament, a player's rating x must be greater than 820. Write the inequality and graph it on the number line.



ANSWER _____

2 A music app sends a storage alert when free phone storage x is less than 250 MB. Write an inequality. Then name two storage amounts that would receive the alert.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A student says x > -4 has only four solutions because they counted -3, -2, -1, and 0. Explain why the student is not correct. Give three additional solutions, including one negative decimal and one positive fraction.

WORK SPACE AND ANSWER

ANSWER KEY

Inequality Boundary Hunt

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use the number line to graph x > 7.	**Open circle at 7 and shade to the right.**
2	Use the number line to graph x < -3.	**Open circle at -3 and shade to the left.**
3	The water temperature x is below 28 degrees. Write an inequality.	**x < 28**
4	A game accepts players whose age x is greater than 10. Write an inequality.	**x > 10**
5	A shelf holds fewer than 35 books. Let x be the number of books on the shelf. Write an inequality.	**x < 35**
6	Maya says x > 6 has only positive whole-number solutions. Is Maya correct? Explain, and give two solutions that are not whole numbers.	**No. x > 6 has infinitely many real-number solutions; 6.5 and 100.25 are two solutions that are not whole numbers.**

PART 2 · APPLY IT

1. **x > 820; open circle at 820 and shade to the right.** The phrase greater than means the rating must be above 820. Since 820 is not included, use an open circle there.
2. **x < 250; 249 MB and 100 MB.** Less than 250 means the boundary value 250 is not included. Any amount below 250 MB is a solution.

CHALLENGE

The student is not correct because there are infinitely many real numbers greater than -4. Three additional solutions are -3.5, 1/2, and 20.

Accept equivalent inequality wording and any correct examples that satisfy the inequality. On number lines, require an open circle at the boundary and shading in the correct direction.