

Boundary Signals

Write and graph one-variable inequalities.

GRADE 6 • NY-6.EE.8

NY-6.EE.8 "Write an inequality of the form $x > c$, $x \geq c$, $x \leq c$, or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of these forms have infinitely many solutions..."

NAME _____

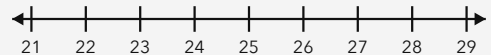
DATE _____

ONE BOUNDARY, MANY ANSWERS

Use $\geq$ or $\leq$ when the boundary value is included. Use $>$ or $<$ when it is not included. On a number line, use a closed circle for included and an open circle for not included, then shade in the direction of the solutions.

WORKED EXAMPLE

A game unlocks when x is no more than 27 points. Graph the solutions on the number line.



1. No more than means $x \leq 27$.
2. 27 is included, so draw a closed circle at 27.
3. Shade to the left for values less than 27.

Answer: $x \leq 27$; closed circle at 27, shaded left

PRACTICE 4 problems

- 1** Write an inequality: x is at least 12.

ANSWER _____

- 2** Write an inequality: x is less than -3.

ANSWER _____

- 3** A snack costs no more than \$18. Let x be the cost.

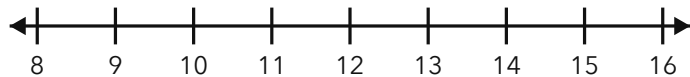
ANSWER _____

- 4** Write the inequality and describe its graph: x is greater than 5.

ANSWER _____

APPLY IT Show your work

- 1** A game tournament is for players age 13 or older. Let x be a player's age. Write and graph the inequality on the number line.



ANSWER _____

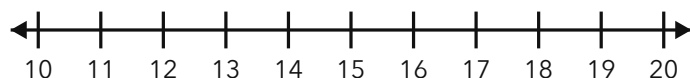
- 2** The robotics club has room for no more than 15 students. Let x be the number who sign up. Write the inequality and describe its graph.

WORK SPACE

ANSWER _____

CHALLENGE One step up

On the printed number line, graph $x \geq 15$. List three solutions, then explain why the inequality has infinitely many solutions.



WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Write an inequality: x is at least 12.	$x \geq 12$
2	Write an inequality: x is less than -3.	$x < -3$
3	A snack costs no more than \$18. Let x be the cost.	$x \leq 18$
4	Write the inequality and describe its graph: x is greater than 5.	$x > 5$; open circle at 5, shaded right

PART 2 • APPLY IT

- $x \geq 13$; closed circle at 13, shaded right "13 or older" includes 13 and all greater ages.
- $x \leq 15$; closed circle at 15, shaded left "No more than 15" includes 15 and values below it.

CHALLENGE

Closed circle at 15, shaded right; sample solutions: 15, 16, 17. There are infinitely many solutions because numbers 15 and greater continue without end.

Accept equivalent wording for open or closed circles and shading direction. For the challenge, accept any three numbers that are at least 15 and a correct explanation that values continue without end.