

Circle Clue Code

Read each number line clue and write two matching inequalities.

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 $<$, $>$, $\leq$, $\geq$."

NAME _____

DATE _____

READ THE CIRCLE AND ARROW

An open circle means the endpoint is not included, so use $<$ or $>$. A closed circle means the endpoint is included, so use $\leq$ or $\geq$. Shading left means less than, and shading right means greater than.

WORKED EXAMPLE

A number line graph has a closed circle at 7 and shading to the right. Write the inequality in two equivalent ways.

1. The closed circle means 7 is included.
2. Shading right means values greater than 7.
3. Use $\geq$ because 7 is included.

Answer: $x \geq 7$ or $7 \leq x$

PRACTICE 6 problems

- 1** A number line graph has an open circle at -4 and shading to the left. Write the inequality in two equivalent ways.

ANSWER _____

- 2** A number line graph has a closed circle at 2 and shading to the right. Write the inequality in two equivalent ways.

ANSWER _____

- 3** A number line graph has a closed circle at 0 and shading to the left. Write the inequality in two equivalent ways.

ANSWER _____

- 4** A number line graph has an open circle at -6 and shading to the right. Write the inequality in two equivalent ways.

ANSWER _____

- 5** A number line graph has an open circle at 5 and shading to the left. Write the inequality in two equivalent ways.

ANSWER _____

- 6** A number line graph has a closed circle at -1 and shading to the right. Write the inequality in two equivalent ways.

ANSWER _____

APPLY IT Show your work

- 1** A gaming club posts a number line graph for the number of players x allowed in a team. The graph has a closed circle at 12 and shading to the left. Write the rule in two equivalent ways.

WORK SPACE

ANSWER _____

- 2** A music app shows a number line graph for the number of songs x in a playlist challenge. The graph has an open circle at 8 and shading to the right. Write the rule in two equivalent ways.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Maya sees a number line graph with a closed circle at -10 and shading to the left. She writes $x < -10$ because the shading points left. Is Maya correct? Write two equivalent inequalities and explain your reasoning.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A number line graph has an open circle at -4 and shading to the left. Write the inequality in two equivalent ways.	$x < -4$ or $-4 > x$
2	A number line graph has a closed circle at 2 and shading to the right. Write the inequality in two equivalent ways.	$x \geq 2$ or $2 \leq x$
3	A number line graph has a closed circle at 0 and shading to the left. Write the inequality in two equivalent ways.	$x \leq 0$ or $0 \geq x$
4	A number line graph has an open circle at -6 and shading to the right. Write the inequality in two equivalent ways.	$x > -6$ or $-6 < x$
5	A number line graph has an open circle at 5 and shading to the left. Write the inequality in two equivalent ways.	$x < 5$ or $5 > x$
6	A number line graph has a closed circle at -1 and shading to the right. Write the inequality in two equivalent ways.	$x \geq -1$ or $-1 \leq x$

PART 2 • APPLY IT

1. $x \leq 12$ or $12 \geq x$ A closed circle includes 12. Shading left represents numbers less than 12.
2. $x > 8$ or $8 < x$ An open circle does not include 8. Shading right represents numbers greater than 8.

CHALLENGE

No. $x \leq -10$ or $-10 \geq x$. The closed circle includes -10, and the shading left shows values less than -10.

Accept either order of each equivalent inequality, including reversed forms such as $5 > x$. Students must use a strict symbol for an open circle and an inclusive symbol for a closed circle.