

Inequality Clues

Turn limits and number-line graphs into inequalities.

GRADE 6 • 6.PFA.4.b

6.PFA.4.b "Write a linear inequality in one variable to represent a given constraint or condition in context or given a graph on a number line."

NAME _____

DATE _____

SHOW THE LIMIT

Use $\leq$ or $\geq$ when the endpoint is included, such as "at most," "no more than," or "at least." Use $<$ or $>$ when the endpoint is not included, such as "less than" or "more than."

WORKED EXAMPLE

A number line has a closed circle at 13 and is shaded to the left. Write an inequality for the graph.

1. A closed circle means 13 is included.
2. Shading left means values are less than 13.
3. Use $\leq$ to include 13.

Answer: $x \leq 13$

PRACTICE 6 problems

- 1** Let x be the temperature in degrees. The temperature is no more than 8 degrees. Write an inequality.

ANSWER _____

- 2** Let x be a player's score change. The score change is at least -3. Write an inequality.

ANSWER _____

- 3** A number line has an open circle at 5 and is shaded to the right. Write an inequality for the graph.

ANSWER _____

- 4** A number line has a closed circle at -7 and is shaded to the right. Write an inequality for the graph.

ANSWER _____

- 5** Let x be the number of minutes left in a game. There are fewer than 12 minutes left. Write an inequality.

ANSWER _____

- 6** Let x be the number of photos in an online album. The album may not exceed 20 photos. Write an inequality.

ANSWER _____

APPLY IT Show your work

- 1** A robotics club has no more than 45 minutes for testing. Setting up takes 9 minutes, and each test run takes 6 minutes. Let x be the number of test runs. Write an inequality.

WORK SPACE

ANSWER _____

- 2** A game-design team has a budget of \$64 for sound effects. A sound library costs \$7, and each extra sound effect costs \$3. Let x be the number of extra sound effects. Write an inequality.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A podcast episode must be no more than 35 minutes long. It has a 4-minute introduction and x song segments that each last 3 minutes. Write an inequality and explain why you chose the inequality symbol.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Let x be the temperature in degrees. The temperature is no more than 8 degrees. Write an inequality.	$x \leq 8$
2	Let x be a player's score change. The score change is at least -3. Write an inequality.	$x \geq -3$
3	A number line has an open circle at 5 and is shaded to the right. Write an inequality for the graph.	$x > 5$
4	A number line has a closed circle at -7 and is shaded to the right. Write an inequality for the graph.	$x \geq -7$
5	Let x be the number of minutes left in a game. There are fewer than 12 minutes left. Write an inequality.	$x < 12$
6	Let x be the number of photos in an online album. The album may not exceed 20 photos. Write an inequality.	$x \leq 20$

PART 2 • APPLY IT

1. $9 + 6x \leq 45$ The setup time and the time for all test runs must be 45 minutes or less. Add 9 to $6x$ and use $\leq$ 45.
2. $7 + 3x \leq 64$ The sound library cost plus the cost of the extra effects cannot be more than \$64. Write $7 + 3x$ and use $\leq$ 64.

CHALLENGE

$4 + 3x \leq 35$, because the introduction and song segments can total 35 minutes or less.

Accept equivalent expressions with the same inequality relationship, such as $6x + 9 \leq 45$. For graph descriptions, accept the correct inequality even if students use words instead of a symbol.