

Inequality Line-Up

Turn real-world limits into inequalities and graphs.

GRADE 6 • MA.6.AR.1.2

MA.6.AR.1.2 "Translate a real-world written description into an algebraic inequality in the form of $x > a$, $x < a$, $x \geq a$ or $x \leq a$. Represent the inequality on a number line."

NAME _____

DATE _____

READ THE LIMIT WORDS

Use $>$ for more than and $<$ for less than. Use $\geq$ for at least or no less than, and $\leq$ for at most or no more than. On a number line, use an open circle when the endpoint is not included and a closed circle when it is included.

WORKED EXAMPLE

A library card can be used to borrow at most 14 books at one time. Let x represent the number of books. Write an inequality and graph it on a number line.

1. At most means 14 is included, along with smaller numbers.
2. Write $x \leq 14$.
3. Place a closed circle at 14 and shade to the left.

Answer: $x \leq 14$; closed circle at 14, shaded to the left

PRACTICE 6 problems

- 1** A movie is for ages 13 and older. Let x represent a viewer's age. Write an inequality and graph it on a number line.

ANSWER _____

- 2** A water bottle holds less than 32 ounces. Let x represent the number of ounces. Write an inequality and graph it on a number line.

ANSWER _____

- 3** You can spend no more than \$18 on a snack. Let x represent the cost in dollars. Write an inequality and graph it on a number line.

ANSWER _____

- 4** A plant needs more than 6 hours of sunlight each day. Let x represent the hours of sunlight. Write an inequality and graph it on a number line.

ANSWER _____

- 5** A bus has fewer than 52 riders. Let x represent the number of riders. Write an inequality and graph it on a number line.

ANSWER _____

- 6** A test score must be at least 70 points to pass. Let x represent the score. Write an inequality and graph it on a number line.

ANSWER _____

APPLY IT Show your work

- 1** Maya has \$25 to spend on a game download. She cannot spend more than that amount. Let x represent the cost of the download in dollars. Write an inequality and graph it on a number line.

WORK SPACE

ANSWER _____

- 2** To ride the tallest roller coaster, a rider must be 48 inches or taller. Let x represent the rider's height in inches. Write an inequality and graph it on a number line.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A music app gives a badge when a student downloads at least 60 songs. Alex writes $x > 60$ and draws an open circle at 60. Explain what Alex should change, then write and graph the correct inequality.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A movie is for ages 13 and older. Let x represent a viewer's age. Write an inequality and graph it on a number line.	$x \geq 13$; closed circle at 13, shaded to the right
2	A water bottle holds less than 32 ounces. Let x represent the number of ounces. Write an inequality and graph it on a number line.	$x < 32$; open circle at 32, shaded to the left
3	You can spend no more than \$18 on a snack. Let x represent the cost in dollars. Write an inequality and graph it on a number line.	$x \leq 18$; closed circle at 18, shaded to the left
4	A plant needs more than 6 hours of sunlight each day. Let x represent the hours of sunlight. Write an inequality and graph it on a number line.	$x > 6$; open circle at 6, shaded to the right
5	A bus has fewer than 52 riders. Let x represent the number of riders. Write an inequality and graph it on a number line.	$x < 52$; open circle at 52, shaded to the left
6	A test score must be at least 70 points to pass. Let x represent the score. Write an inequality and graph it on a number line.	$x \geq 70$; closed circle at 70, shaded to the right

PART 2 • APPLY IT

- $x \leq 25$; closed circle at 25, shaded to the left Cannot spend more than means the cost can equal 25 or be less. Use $\leq$ and include 25 with a closed circle.
- $x \geq 48$; closed circle at 48, shaded to the right 48 inches or taller includes a height of exactly 48 inches. Use $\geq$ and shade toward greater heights.

CHALLENGE

Alex should include 60 because at least means 60 counts. The correct inequality is $x \geq 60$; use a closed circle at 60 and shade to the right.

Accept equivalent number line descriptions such as "filled circle" for "closed circle." The endpoint must be included for $\geq$ and $\leq$, and excluded for $>$ and $<$.