LESSON MAKER PRO

# Which Side Counts?

*Write and graph strict inequalities.*

**GRADE 6 · MT.6.EE.7**

**MT.6.EE.7** "Write an inequality of the form x > c or x < c to represent a constraint or condition in problems including problems in context; graph and describe solutions of such inequalities on number line diagrams."

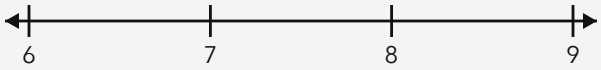
NAME _____ DATE _____

## OPEN CIRCLE, ONE DIRECTION

Use x > c for values greater than c and x < c for values less than c. On a number line, put an open circle at c because c is not included. Draw a ray right for > or left for <.

### WORKED EXAMPLE

A game timer shows more than 7 minutes of play. Let x be the time in minutes. Write an inequality and graph the possible times on this number line.

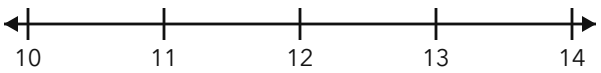



1. More than 7 means x > 7.
2. Put an open circle at 7 because 7 is not included.
3. Draw a ray to the right for times greater than 7.

**Answer: x > 7; open circle at 7, ray right.**

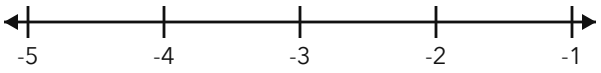
## PRACTICE 6 problems

**1** Graph x < 12 on this number line. Describe the solutions in words.




**ANSWER** _____

**2** Graph x > -3 on this number line. Is -3 a solution?




**ANSWER** _____

_____

**3** Write an inequality for "x is less than 0." Name one solution.

**ANSWER** _____

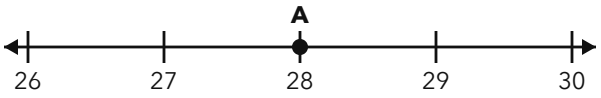
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**4** A game level unlocks when your score x is above 20 points. Write an inequality and name one whole-number score that works.

**ANSWER** _____

_____

**5** Point A marks a cutoff on the number line. All numbers to the right of A, but not A itself, are solutions. Write the inequality and name one solution.




**ANSWER** _____

_____

**6** A bike trail is open to riders younger than 16 years old. Let x be a rider's age in years. Write an inequality. Is age 16 a solution?

**ANSWER** _____

_____

## APPLY IT Show your work

**1** At a school game night, you can join a team only if you have more than 40 points. Let x be your points. Write an inequality and explain whether 40 points qualifies.

WORK SPACE

**ANSWER** _____

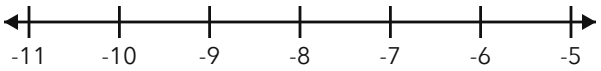
**2** In a video game, your backpack gets a speed boost when it holds fewer than 50 items. Let x be the number of items. Write an inequality and give the greatest whole number of items that earns the boost.

WORK SPACE

**ANSWER** _____

## CHALLENGE One step up

A weather app flags temperatures below -8°C. A student writes x > -8 and says -8°C is flagged. Let x be the temperature in °C. Graph the correct inequality on this number line and explain both mistakes.




WORK SPACE AND ANSWER

**ANSWER KEY**

# Which Side Counts?

**GRADE 6 · MT.6.EE.7**

## PART 1 · PRACTICE

| # | PROBLEM | ANSWER |
|---|---|---|
| 1 | Graph x < 12 on this number line. Describe the solutions in words. | **Open circle at 12, ray left. The solutions are all numbers less than 12.** |
| 2 | Graph x > -3 on this number line. Is -3 a solution? | **Open circle at -3, ray right. No, -3 is not a solution.** |
| 3 | Write an inequality for "x is less than 0." Name one solution. | **x < 0; for example, -1 is a solution.** |
| 4 | A game level unlocks when your score x is above 20 points. Write an inequality and name one whole-number score that works. | **x > 20; for example, 21 points works.** |
| 5 | Point A marks a cutoff on the number line. All numbers to the right of A, but not A itself, are solutions. Write the inequality and name one solution. | **x > 28; for example, 29 is a solution.** |
| 6 | A bike trail is open to riders younger than 16 years old. Let x be a rider's age in years. Write an inequality. Is age 16 a solution? | **x < 16; no, age 16 is not a solution.** |

## PART 2 · APPLY IT

1. **x > 40; 40 points does not qualify.** "More than" means the score must be greater than 40, not equal to it.
2. **x < 50; 49 items.** The item count must be less than 50. The greatest whole number below 50 is 49.

## CHALLENGE

**x < -8; open circle at -8, ray left. The inequality points left because temperatures below -8 are smaller than -8. The open circle shows that -8°C itself is not flagged.**

Accept any valid example where a problem asks for one solution. Graphs need an open circle at the cutoff and a ray in the correct direction.