

Writing and Graphing Inequalities on a Number Line

Grade 6 math · Worksheet · Standards: 6.EE.B.5, 6.EE.B.8

Name: _____ Date: _____ Class: _____

These 20 problems follow standards 6.EE.B.5 and 6.EE.B.8. Students read and write inequalities, test whether values are solutions, graph on number lines with open and closed circles, and describe real-world limits.

The final six problems are word problems about heights, budgets and temperatures. Decide first whether the situation sets a minimum or a maximum, then choose the symbol.

Standards: 6.EE.B.5, 6.EE.B.8 · **Level:** Grade 6

Problem 1 Reading inequalities (easy)

Write each inequality in words: (a) $x > 9$ (b) $x \leq 4$ (c) $x \geq 0$ (d) $x < -2$.

Problem 2 Writing inequalities (easy)

Write an inequality for each statement.

- A number n is less than 12.
- y is at least 7.
- p is at most 30.
- w is more than 2.5.

Problem 3 Testing a value (easy)

Is 5 a solution of each inequality? (a) $x > 3$ (b) $x \geq 5$ (c) $x < 5$ (d) $x \leq 4$

Problem 4 Testing values in an expression (easy)

Which of the values 2, 4, 6 and 8 are solutions of $x + 3 > 8$?

Problem 5 Reading a graph (easy)

Write the inequality shown by the graph.



Graph for Problem 5.

Problem 6 Solutions and non-solutions (easy)

Name three solutions and one non-solution of $x \geq 10$.

Problem 7 Graph with an open circle (medium)

Graph $x < 7$ on a number line.

Problem 8 Reading a closed circle (medium)

Write the inequality shown by the graph.



Graph for Problem 8.

Problem 9 Testing with a coefficient (medium)

Which of the values 4, 5, 6 and 7 are solutions of $2x < 12$?

Problem 10 Negative numbers (medium)

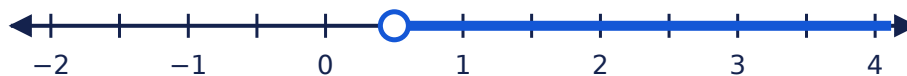
Which of the values -5 , -2 , 0 and 1 are solutions of $x \geq -2$?

Problem 11 Write and graph (medium)

Write an inequality for “ x is at most 6” and graph it.

Problem 12 Decimal boundary (medium)

Write the inequality shown by the graph. Is 0.5 a solution? Is 0.51 ?



Graph for Problem 12 (ticks every 0.5).

Problem 13 Limits in context (medium)

Write an inequality for each situation.

- An elevator carries no more than 800 pounds (w).
- Riders must be at least 48 inches tall (h).
- Fewer than 25 students ride one bus (s).

Problem 14 Same or different (medium)

Do $x > 11$ and $11 < x$ have the same solutions? How do $x \geq 11$ and $x > 11$ differ?

Problem 15 Roller coaster (medium)

A coaster requires riders to be at least 48 inches tall. The graph shows allowed heights. Which riders may ride: Ana, 52 in.; Bo, 47.5 in.; Cy, 48 in.; Dee, 45 in.?



Allowed heights (inches) for the coaster.

Problem 16 Spending limit (medium)

Jordan wants his total spending t to be at most \$40. Write an inequality. Do \$38.50 and \$41 satisfy it?

Problem 17 Prize score (hard)

A fair game awards a prize for a score s of more than 85. Write and graph the inequality, then name three winning scores and one losing score.

Problem 18 Greenhouse temperature (hard)

A greenhouse must stay at least 60 °F and at most 85 °F. Write two inequalities for the temperature t , then say which of 58, 60, 72, 85 and 90 satisfy both.

Problem 19 Breaking even (hard)

A food truck must sell at least 120 meals to break even. It has sold 74. Write an inequality for the total meals m and tell the fewest additional meals it must sell.

Problem 20 Explain infinitely many (hard)

Explain why $x > 7$ has infinitely many solutions, why the graph uses an open circle, and give a solution between 7 and 8.