

Grade 6 · Writing and Graphing Inequalities · Worksheet

Common Core 6.EE.B.5, 6.EE.B.8 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

These 20 problems practice reading, writing, testing, and graphing inequalities from Common Core 6.EE.B.5 and 6.EE.B.8. You compare numbers, test values for solutions, and graph with open and closed circles on number lines.

The last six problems are word problems about ages, library books, spending, shipping, ride heights, and a fair budget. Decide for each whether the boundary number is included.

Grade 6 Common Core: 6.EE.B.5 · 6.EE.B.8

Problem 1: Reading Inequality Symbols

Write each inequality in words.

- a. $x > 7$
- b. $y \leq 12$
- c. $3 < n$
- d. $p \geq 0.5$

$<$ less than	$>$ greater than	$\leq$ at most	$\geq$ at least
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Symbol reference.

Problem 2: Comparing Numbers

Write the symbol $<$ or $>$ in each blank.

- a. 9 ____ 4
- b. 2.5 ____ 2.05
- c. $\frac{3}{4}$ ____ $\frac{7}{10}$
- d. 0.3 ____ $\frac{1}{3}$

Problem 3: Compare More Numbers

Write the symbol $<$ or $>$ in each blank.

- a. $15 \underline{\hspace{1cm}} 12$
- b. $0.7 \underline{\hspace{1cm}} 0.65$
- c. $\frac{5}{8} \underline{\hspace{1cm}} \frac{3}{5}$
- d. $1.09 \underline{\hspace{1cm}} 1.9$

Problem 4: Phrases to Inequalities

Write an inequality for each phrase.

- a. t is more than 18
- b. w is no more than 6
- c. k is fewer than 25
- d. b is no less than 2.5

Problem 5: Writing Inequalities

Write an inequality for each statement.

- a. x is greater than 9
- b. y is less than 15
- c. n is at least 20
- d. p is at most 3.5

Problem 6: Testing Values

Decide whether the given value is a solution of the inequality. Show the substitution.

- a. $x > 6$; $x = 8$
- b. $x < 10$; $x = 10$
- c. $x \geq 4$; $x = 4$
- d. $x \leq 2.5$; $x = 3$

Problem 7: Pick the Solutions

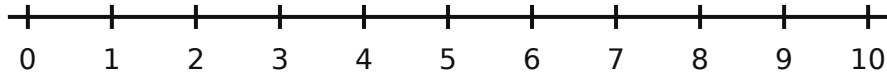
Find every solution from each list.

- a. Which of 1, 4, 6.5, 9 are solutions of $n < 6.5$?
- b. Which of 0, 11.9, 12, 20 are solutions of $y \geq 12$?

Problem 8: Graphing Inequalities

Graph each inequality on its own number line from 0 to 10.

- a. $x > 3$
- b. $x \leq 5$
- c. $x < 2$

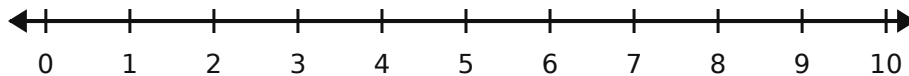


Blank number line for graphing.

Problem 9: Graph More Inequalities

Graph each inequality on its own number line from 0 to 10.

- a. $x \geq 1$
- b. $x < 8$
- c. $x > 6$



Number line for graphing.

Problem 10: Reading Graphs

Write the inequality shown by each graph.



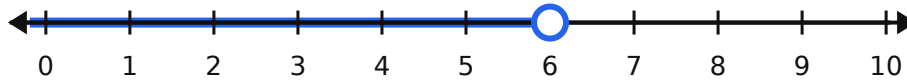
Graph a.



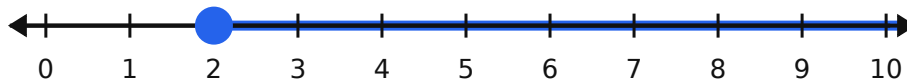
Graph b.

Problem 11: Read More Graphs

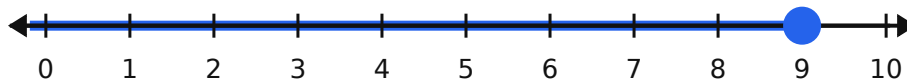
Write the inequality shown by each graph.



Graph a.



Graph b.



Graph c.

Problem 12: Substitute to Test

Substitute each value to decide which are solutions of the inequality.

- a. $x+4>9$; values 4, 5, 6
- b. $3x\leq 12$; values 3, 4, 5
- c. $\frac{x}{2}\geq 5$; values 8, 10, 12

Problem 13: Infinitely Many Solutions

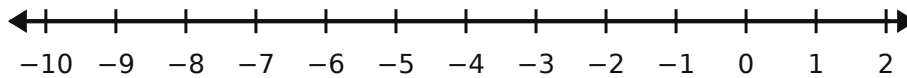
List three different solutions of $x>2.5$ and one number that is not a solution. Explain why the inequality has infinitely many solutions.

Problem 14: Freezer Temperature

A freezer must stay at or below -4°F . Let t be the temperature in degrees Fahrenheit.

- a. Write an inequality for t .
- b. Is -6°F a solution? Is -2°F ?

c. Graph the inequality on a number line from -10 to 2 .



Number line for the graph.

Problem 15: Little League Ages

A Little League division is for players who are at most 12 years old. Write an inequality for a player's age a , then tell whether $a=12$ and $a=13$ are solutions.

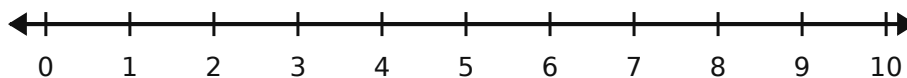


Graph of $x > 2.5$.

Problem 16: Library Books

A library card lets a patron borrow at most 8 books at one time. Let b be the number of books borrowed.

- Write an inequality for b .
- Is $b=8$ a solution? Is $b=9$?
- List every whole-number solution and graph them on the number line.

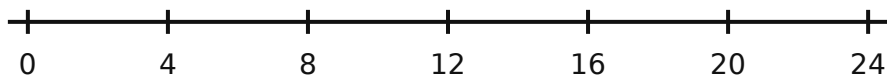


Number line for the graph.

Problem 17: Spending Limit

Maya has \$20 to spend at the farmers market. Let s be the dollars she spends.

- Write an inequality for the amount she can spend.
- Is \$18.75 a solution? Is \$21?
- Graph the inequality on the number line below, using the numbers 0 to 24.

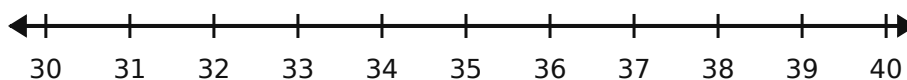


Number line for the graph.

Problem 18: Free Shipping

An online store gives free shipping when the order total is more than \$35. Let t be the order total in dollars.

- Write an inequality for t .
- Priya's order is \$34.99, Jamal's is \$35, and Ethan's is \$35.01. Who gets free shipping?
- Graph the inequality on the number line.

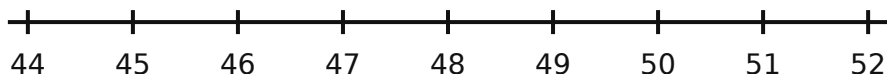


Number line for the graph.

Problem 19: Roller Coaster

Riders on a roller coaster must be at least 48 inches tall. Jamal is 45.5 in. tall, Aisha is 48 in. tall, and Noah is 51 in. tall.

- Write an inequality for a rider's height h .
- Which of the three riders can ride?
- Graph the inequality on the number line below.
- Write and solve an equation to find how many more inches Jamal must grow to reach the minimum height.



Number line for the graph.

Problem 20: County Fair Budget

Noah has \$60 to spend at the county fair. Entry costs \$12, and each ride ticket costs \$3. Let r be the number of ride tickets he buys.

- a. Write an inequality that shows the total cost must not go over \$60.
- b. Test $r=15$, $r=16$, and $r=17$.
- c. Find the greatest number of ride tickets Noah can buy.