

Writing and Graphing Inequalities on a Number Line

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

Name: _____ Date: _____ Class: _____

This test has 8 questions worth 20 points and takes about 45 minutes. Show your reasoning, and label every graph clearly with open or closed circles. Calculators are not allowed.

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

Time: 45 minutes · 8 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 Writing inequalities (2 points)

Write an inequality for each statement.

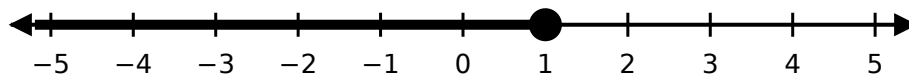
- n is at least 15. (1 point)
- k is less than -3 . (1 point)

Question 2 Finding solutions (2 points)

Which of the values 3, 5, 8 and 11 are solutions of $x - 2 \geq 6$? Show the substitutions.

Question 3 Reading a graph (2 points)

Use the graph.



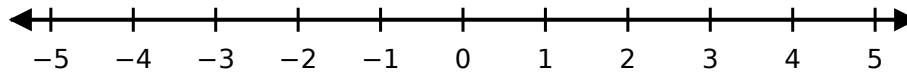
Graph for Question 3.

- Write the inequality shown. (1 point)
- Name one solution and one number that is not a solution. (1 point)

Question 4 Graphing (3 points)

Use number lines like the one below.

- Graph $x > -2$. (1 point)
- Graph $x \leq 3$. (1 point)
- Explain why one graph uses an open circle and the other a closed circle. (1 point)



Number line for Question 4.

Question 5 Real-world statements (2 points)

Write an inequality for each situation.

- a. A bus holds at most 48 passengers (p). (1 point)
- b. A museum ticket costs more than \$12.50 (c). (1 point)

Question 6 Trampoline weight limit (3 points)

A trampoline park lets jumpers weigh no more than 250 pounds.

- a. Write an inequality for the weight w . (1 point)
- b. Which of 180, 250 and 251.5 pounds may jump? (1 point)
- c. Are there infinitely many possible weights? Explain. (1 point)

Question 7 Closed versus open (3 points)

Compare $x \geq 4$ and $x > 4$.

- a. Is 4 a solution of each? (1 point)
- b. How do their graphs differ? (1 point)
- c. Give a number that is a solution of both. (1 point)

Question 8 Fundraiser goal (3 points)

A scout troop needs to raise at least \$600 and has raised \$425 so far.

- a. Write an inequality for the total r raised. (1 point)
- b. Does a total of \$610 meet the goal? (1 point)
- c. What is the least additional amount needed? (1 point)