

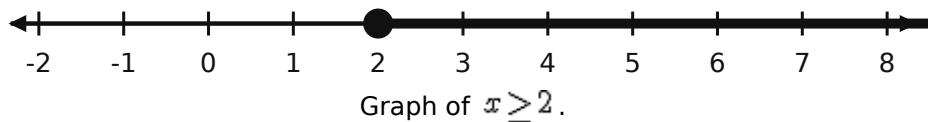
Algebra 1 - Linear Inequalities in One Variable - Test Answer Key

Common Core A-REI.B.3, A-CED.A.1 · maths-pdf.fr/en/

Use this key to grade the linear inequalities test. Each solution shows the full work, and the scoring note explains how the points are awarded. The test totals 20 points. Give partial credit for correct steps, even when the final answer is wrong.

Algebra 1 · Common Core State Standards: **A-REI.B.3, A-CED.A.1**

Question 1 - Graphs and inequalities [2 pts]



a) The circle at -1 is open and the ray points left: $x < -1$.

b) Closed circle at 2, ray to the right.

Scoring: 1 point for each correct part.

Question 2 - Two-step inequality [2 pts]

Add 7: $4x > 20$. Divide by 4.

$$x > 5$$

Scoring: 1 point for isolating the term; 1 point for the solution.

Question 3 - Negative coefficient [2 pts]

Subtract 3: $-5x \leq 25$. Divide by -5 and reverse the symbol.

$$x \geq -5$$

Scoring: 1 point for the correct first step; 1 point for reversing the symbol.

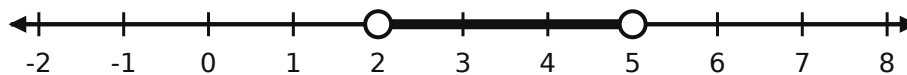
Question 4 - Variables on both sides [2 pts]

Distribute: $3x+6 \geq 5x-4$. Subtract $3x$: $6 \geq 2x-4$. Add 4: $10 \geq 2x$.

Divide by 2: $5 \geq x$, which is $x \leq 5$.

Scoring: 1 point for distributing and collecting terms; 1 point for the final inequality written correctly.

Question 5 - And inequality [2 pts]



Graph of $2 < x < 5$.

Add 5 to all parts: $6 < 3x < 15$. Divide by 3: $2 < x < 5$.

Scoring: 1 point for the solution; 1 point for the graph with open circles.

Question 6 - Or inequality [2 pts]

First: $2x \leq -4$, so $x \leq -2$. Second: $x > 5$.

$x \leq -2$ or $x > 5$

Scoring: 1 point for each correct inequality.

Question 7 - Savings goal [3 pts]

a) $35+8w \geq 120$.

b) $8w \geq 85$, so $w \geq 10.625$.

c) Weeks are whole numbers, so round up. Check: 10 weeks give \$115, which is not enough; 11 weeks give \$123.

11 weeks

Scoring: 1 point per part.

Question 8 - Find the error [3 pts]

- a) The student divided by -4 but did not reverse the symbol.
- b) $x > -5$.
- c) Test $x = 0$: $-4(0) = 0 < 20$ is true, and 0 is in the solution set $x > -5$. Test $x = -6$: $-4(-6) = 24 < 20$ is false.

Scoring: 1 point per part.

Question 9 - Test values [2 pts]

Substitute each value: $x = -1$: $-5 < 7$ true; $x = 4$: $5 < 7$ true; $x = 5$: $7 < 7$ false; $x = 8$: $13 < 7$ false.

$x = -1$ **and** $x = 4$

Scoring: 1 point for substituting all four values; 1 point for the correct two values.

Total
20 points