

Algebra 1 · Graphing Linear Inequalities and Systems of Inequalities · Quiz

Common Core A-REI.D.12, A-CED.A.3 · mathovore.fr

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

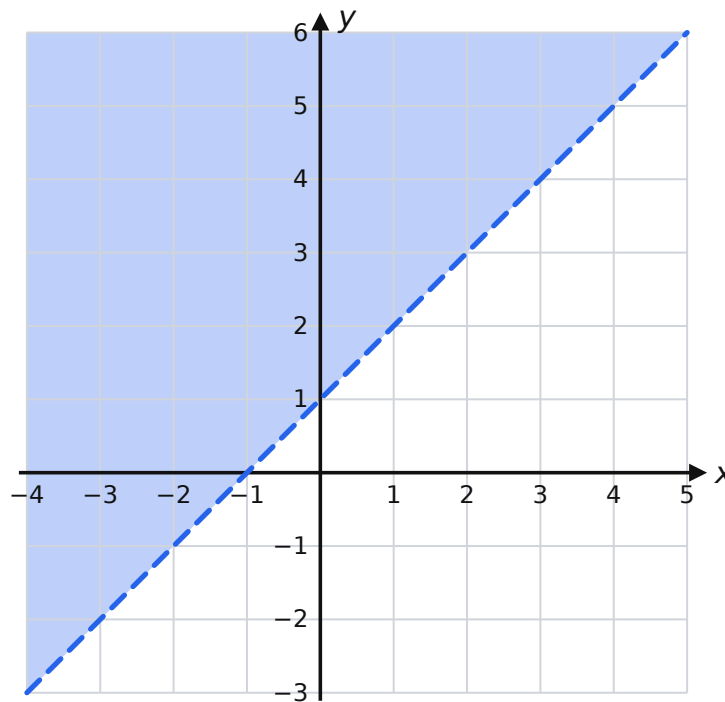
Take this ten-question quiz to check your skills with linear inequalities, solid and dashed lines, shading, and systems of inequalities. Each question has exactly one correct answer. Read each explanation, especially for the questions you miss.

Algebra 1 Common Core: **A-REI.D.12 · A-CED.A.3**

Questions

Question 1

Which inequality is graphed?



A shaded half-plane.

- A. $y < x + 1$
- B. $y \geq x + 1$
- C. $y > x - 1$
- D. $y > x + 1$

Question 2

Which point is a solution of $y \leq 2x - 1$?

- A. (0, 0)
- B. (2, 4)
- C. (1, 2)
- D. (1, 1)

Question 3

Which describes the graph of $x + y < 5$?

- A. Dashed boundary, shaded toward the origin
- B. Solid boundary, shaded toward the origin
- C. Dashed boundary, shaded away from the origin
- D. Solid boundary, shaded away from the origin

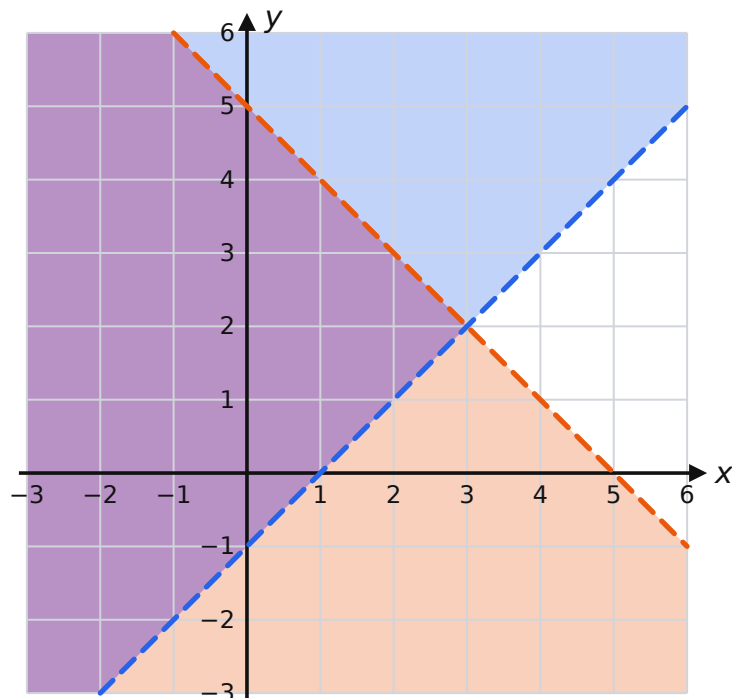
Question 4

Solve $-2y > 8x - 6$ for y .

- A. $y > -4x + 3$
- B. $y < 4x - 3$
- C. $y < -4x + 3$
- D. $y > 4x - 3$

Question 5

Which point is a solution of the system whose graph is shown?



The overlap is the solution region.

- A. (4, 1)
- B. (2, 2)
- C. (1, -1)
- D. (3, 3)

Question 6

Which statement is true about $y > x + 2$ and $y < x - 3$?

- A. Every point above both lines works
- B. No point satisfies both inequalities
- C. Only the crossing point works
- D. Every point between the lines works

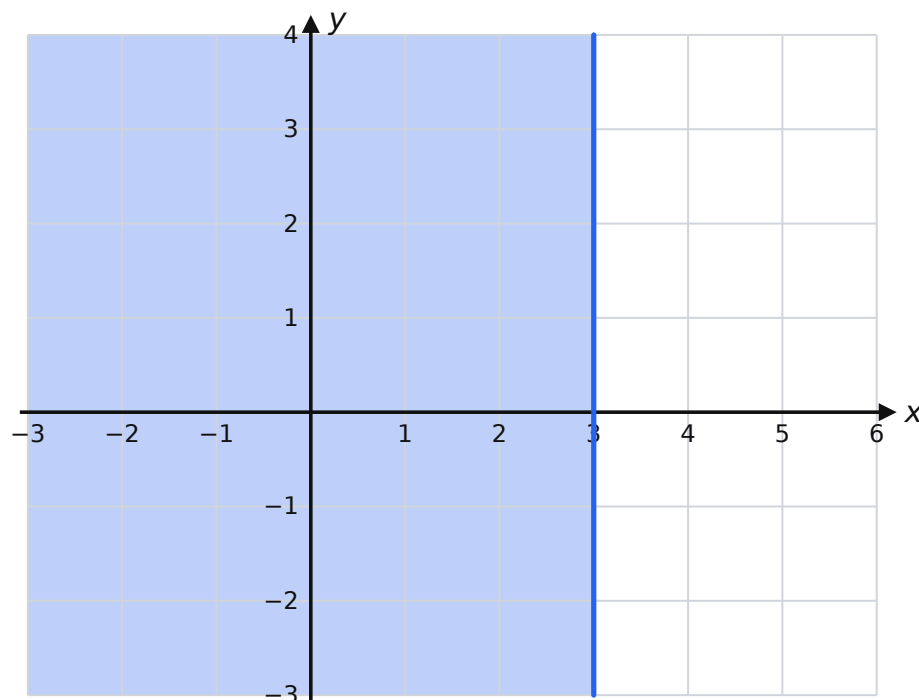
Question 7

A student buys x folders at \$2 and y pens at \$3 with at most \$30. Which inequality models the cost?

- A. $2x + 3y \geq 30$
- B. $2x + 3y < 30$
- C. $2x + 3y \leq 30$
- D. $3x + 2y \leq 30$

Question 8

Which inequality is graphed?



A shaded half-plane.

- A. $x \geq 3$
- B. $x \leq 3$
- C. $x < 3$
- D. $y \leq 3$

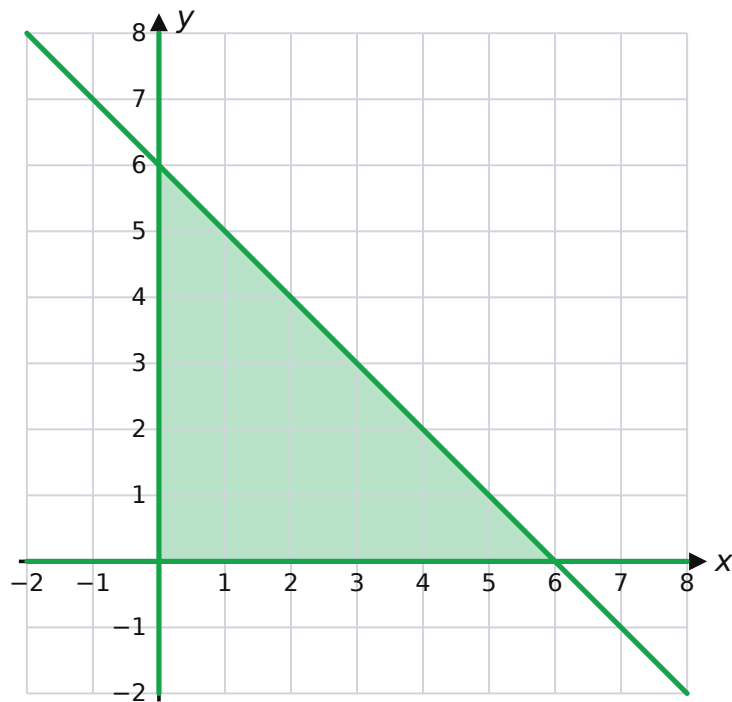
Question 9

The point $(4,2)$ lies on the boundary of $x-2y \geq 0$. Is it a solution?

- A. Yes, because $0 \geq 0$ is true
- B. No, because $0 > 0$ is false
- C. No, because boundary points are never solutions
- D. Yes, because the point is above the line

Question 10

Which are the corners of the region $x \geq 0$, $y \geq 0$ and $x+y \leq 6$?



The shaded region and its corners.

- A. $(0, 0)$, $(6, 0)$, $(0, 6)$
- B. $(0, 0)$, $(6, 0)$, $(6, 6)$
- C. $(0, 0)$, $(3, 3)$, $(6, 0)$
- D. $(6, 0)$, $(0, 6)$, $(6, 6)$

Answer key

1. **D** - The line has y-intercept 1 and slope 1. It is dashed, so the symbol is strict, and the shading is above, so it is $>$.
2. **D** - For (1,1): $1 \leq 2(1) - 1 = 1$ is true. The other points all give a false statement.
3. **A** - The symbol $<$ means dashed. The test point (0,0) gives $0 < 5$, true, so the origin side is shaded.
4. **C** - Divide every term by -2 and reverse the symbol: $y < -4x + 3$. Forgetting to reverse gives the wrong shading side.
5. **B** - For (2,2): $2 > 1$ and $2 < 3$ are both true. The others fail at least one inequality.
6. **B** - The lines are parallel. A solution would need $x + 2 < y < x - 3$, which is impossible.
7. **C** - The total cost is $2x + 3y$. "At most" means less than or equal to, so $\leq$, and the prices go with their own items.
8. **B** - The vertical solid line is $x = 3$, and the shading is to the left, where the x-values are smaller, so $x \leq 3$.
9. **A** - Substituting gives $4 - 2(2) = 0$, and $0 \geq 0$ is true. The symbol $\geq$ includes the boundary line.
10. **A** - The line $x + y = 6$ meets the axes at (6,0) and (0,6), and the axes meet at (0,0).

Remember:

- Standards A-REI.D.12 and A-CED.A.3: graph linear inequalities and systems, and model constraints.
- Solid line for $\leq$ and $\geq$; dashed line for $<$ and $>$.
- Use a test point not on the line, such as (0,0), to decide which side to shade.
- Multiplying or dividing by a negative number reverses the inequality symbol.
- The solution set of a system is the overlap of the half-planes; a feasible region lists all allowed combinations.