

Algebra 1 - Linear Inequalities in Two Variables and Systems - Test Answer Key

Common Core A-REI.D.12, A-CED.A.3 · maths-pdf.fr/en/

These are worked solutions for the inequalities in two variables test with a scoring guide for every question. Award points for correct method as well as for the final answer. The test totals 20 points, so add the question scores to find the final grade.

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

Question 1 - Test points [2 pts]

a) $1 \leq -1 + 3 = 2$ true: **yes**.

b) $1 \leq -3 + 3 = 0$ false: **no**.

Scoring: 1 point for each part.

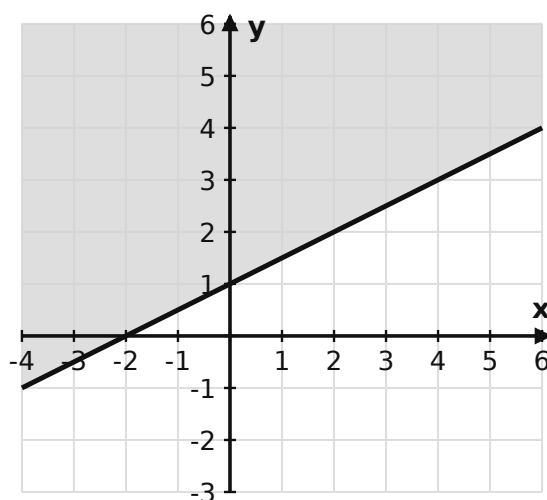
Question 2 - Boundary and shading [2 pts]

The symbol $>$ is strict, so the line is dashed. Since y is greater than the expression, shade above the line.

Dashed; shade above

Scoring: 1 point for the line type; 1 point for the shaded side.

Question 3 - Graph an inequality [2 pts]



Solid line, shade above.

Graph the solid line through $(0,1)$ with slope $\frac{1}{2}$. Shade above.

Scoring: 1 point for the correct solid line; 1 point for shading the correct side.

Question 4 - Standard form [2 pts]

Subtract $2x$: $-y < -2x + 4$. Divide by -1 and reverse the symbol: $y > 2x - 4$.

$y > 2x - 4$; dashed line through $(0, -4)$ with slope 2, shade above

Scoring: 1 point for reversing the symbol correctly; 1 point for the description.

Question 5 - Write from a graph [2 pts]

The solid line passes through $(0,2)$ with slope -1 , so it is $y = -x + 2$. Shading is below, and the line is solid.

$$y \leq -x + 2$$

Scoring: 1 point for the boundary line; 1 point for the correct symbol.

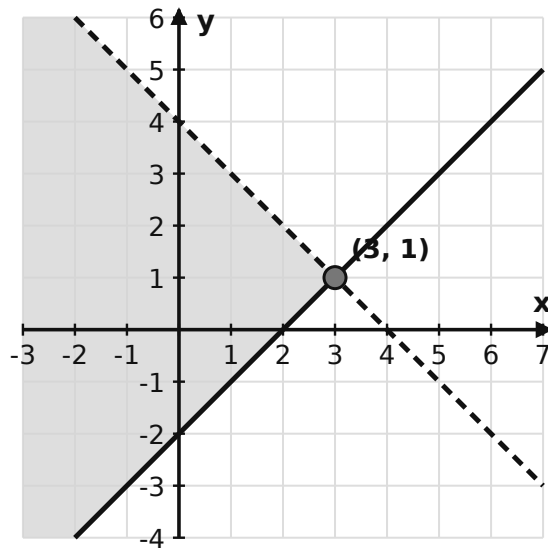
Question 6 - Check a system [2 pts]

First: $3 > 2$ true. Second: $3 \leq -2 + 6 = 4$ true.

Yes

Scoring: 1 point for each inequality checked.

Question 7 - Graph a system [3 pts]



Overlap with corner (3, 1).

The boundary $y = x - 2$ is solid with shading above. The boundary $y = -x + 4$ is dashed with shading below.

The lines meet where $x - 2 = -x + 4$: $x = 3$, $y = 1$.

Overlap region with corner (3,1)

Scoring: 1 point for each correct boundary and shading; 1 point for the corner.

Question 8 - Lemonade stand [3 pts]

a) $4x + 3y \geq 80$.

b) $4(10) + 3(15) = 85 \geq 80$, so yes.

c) $4(8) + 3(12) = 68 \geq 80$ is false, so no.

$4x + 3y \geq 80$; **yes; no**

Scoring: 1 point per part.

Question 9 - Time constraints [2 pts]
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$$x \geq 2, y \geq 1, x+y \leq 10.$$

One solution is (4,3): $4 \geq 2, 3 \geq 1, 7 \leq 10$.

System above; for example (4, 3)

Scoring: 1 point for the system; 1 point for a valid solution.

Total
20 points