Sets & Steps
Math Practice & Worked Solutions

Algebra 1

Solving Systems by Graphing

Solving Systems by Graphing | A1-U06-P01

96 problems · Four activity formats

Topic focus

Across 96 tasks this topic asks for an exact or justified approximate common solution with verification.

8 PDFs and a README; 142 buyer pages.

The following pages use the same questions, given data, and notation as the final files. Question/card serial numbers and internal IDs are omitted in this preview only. Table values and matching responses are retained. Full answer keys are not included.

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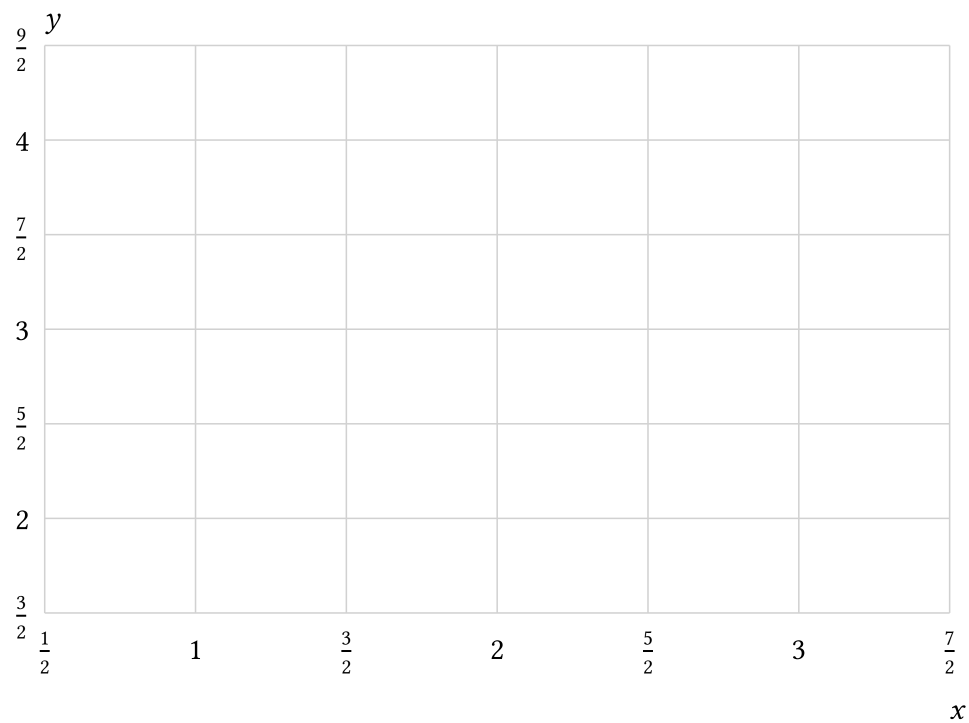
Algebra 1

Solving Systems by Graphing

Name: ____________ **Date:** ____________ **Class:** ____________

Answer each question and record the matching bank letter. Give exact values. A value without its unit is not a complete answer.

Graph the system $y = x + 1$ and $y = -x + 5$ on common axes. Use two exact points per line, locate the crossing, and verify the ordered pair in both equations.



Input x	**Output y**
1	2
3	4

Input x	**Output y**
1	4
3	2

Bank label: ______

Algebra 1

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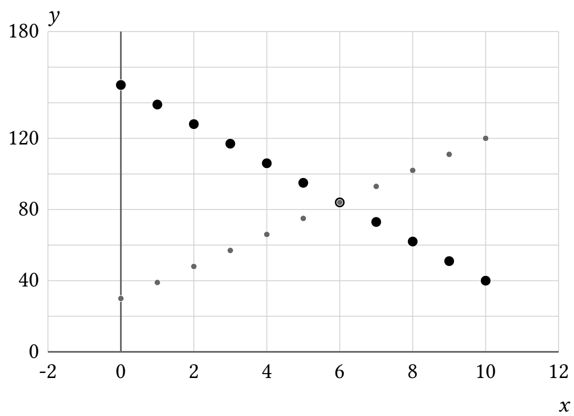
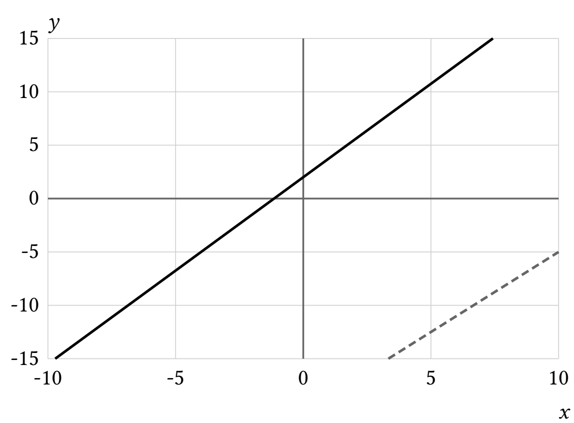
Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. A value without its unit is not a complete answer.

Two supplied contextual graphs follow $A(x) = -11x + 150$ and $B(x) = 9x + 30$ for x in $\{0, 1, \ldots, 10\}$. The input unit is orders and output unit is items. Find and interpret their intersection, then enforce the stated domain.



Test candidate point $(1, 1)$ against the system $y = 3x - 2$ and $y = -2x + 4$. Report separately whether each equation passes before deciding common membership.

A graphing panel shows $y = \frac{7}{4}x + 2$ and $y = \frac{3}{2}x - 20$ only in window $[-10, 10]x[-15, 15]$. What conclusion is warranted, and what exact feature or improved window would support it?



Test candidate point $(1, 0)$ against the system $y = 2x + 3$ and $y = -3x + 1$. Report separately whether each equation passes before deciding common membership.

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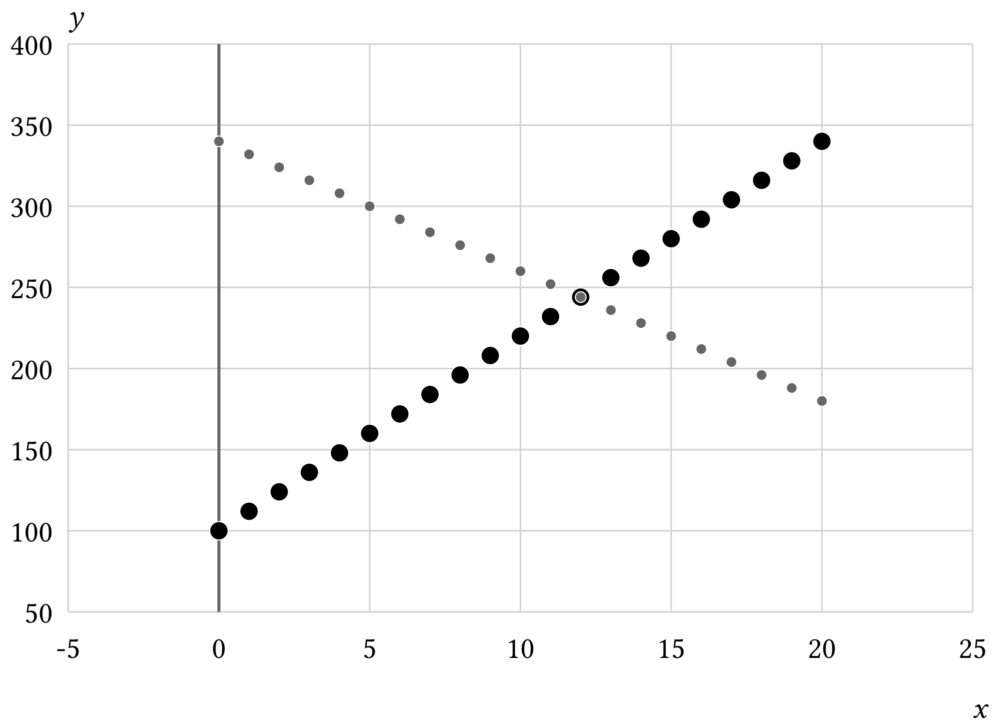
Name: ______________ **Date:** ______________ **Class:** ______________

Begin at START. Answer the card, then find the matching final answer at the top of another card. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: For y = $-4x + 7$ and $y = -4x + 7$ in window $[-1, 2]x[-2, 8]$, the lines are coincident; the crop does not change that exact relationship.

Two supplied contextual graphs follow $A(x) = 12x + 100$ and $B(x) = -8x + 340$ for x in $\{0, 1,...,20\}$. The input unit is tickets and output unit is dollars. Find and interpret their intersection, then enforce the stated domain.



Your response: ______________

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Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

Audit this graphical-system solution: Fractional graph points are rounded before the lines are drawn, moving the crossing. Identify the first plotting, scale, or common-membership error and repair it.

Audit this graphical-system solution: The equation $x = -4$ is plotted as $y = -4$. Identify the first plotting, scale, or common-membership error and repair it.

Audit this graphical-system solution: The line $y = -2x + 1$ is drawn with rise 2 for run 1. Identify the first plotting, scale, or common-membership error and repair it.

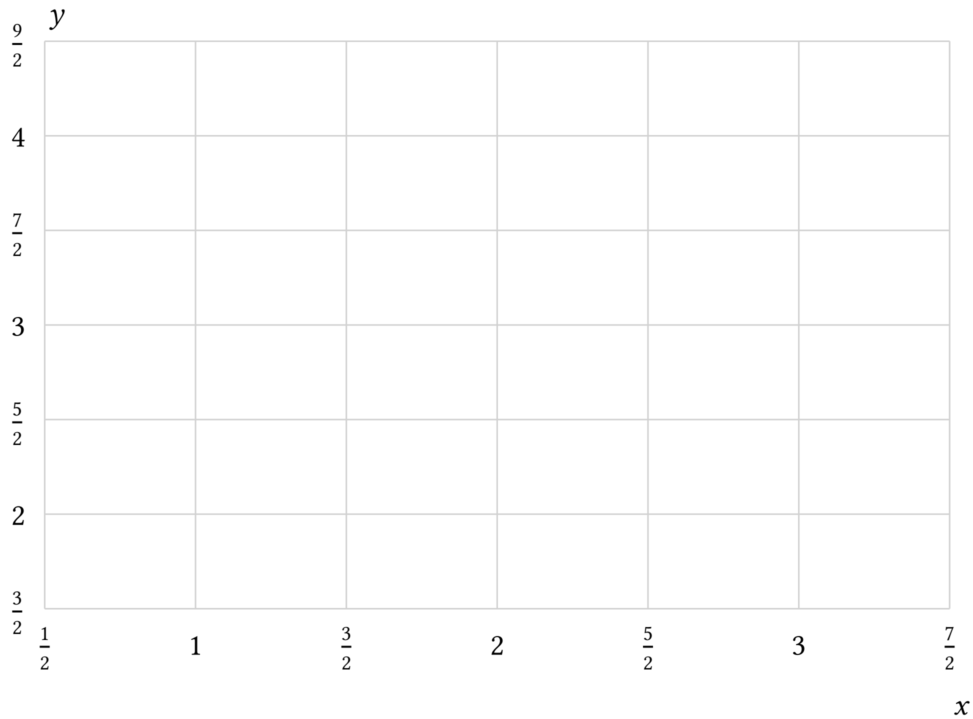
Audit this graphical-system solution: For $y = 3x - 4$, the plotted line starts at $(0, 4)$. Identify the first plotting, scale, or common-membership error and repair it.

Solving Systems by Graphing

Full Worked Solutions - excerpt

Worked example

Problem. Graph the system $y = x + 1$ and $y = -x + 5$ on common axes. Use two exact points per line, locate the crossing, and verify the ordered pair in both equations.



Input x	Output y
1	2
3	4

Input x	Output y
1	4
3	2

Answer. The graphs of y = $x + 1$ and $y = -x + 5$ intersect at $(2, 3)$, which satisfies both original equations.

Explanation and check.

Plot line 1 through $(1, 2), (3, 4)$ and line 2 through $(1, 4), (3, 2)$; their shared point is $(2, 3)$.

Worked example

Problem. Test candidate point $(2, 5)$ against the system $y = 2x + 1$ and $y = -x + 7$. Report separately whether each equation passes before deciding common membership.

Answer. For y = $2x + 1$ and $y = -x + 7$, first equation: passes; second equation: passes. Therefore $(2, 5)$ is a common solution.

Explanation and check.

Both original equations accept $(2, 5)$, so the point lies on both graphs simultaneously.