

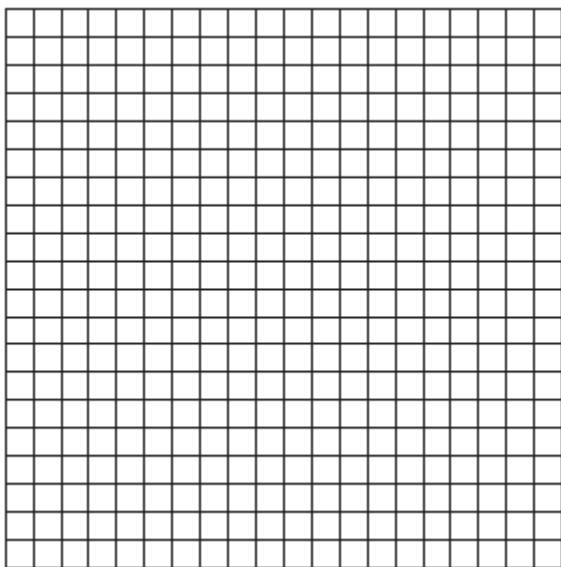
A.G.7: Graph and solve systems of linear equations and inequalities with rational coefficients in two variables.

1. 080938ia, P.I. A.G.7

On the grid below, solve the system of equations graphically for x and y .

$$4x - 2y = 10$$

$$y = -2x - 1$$

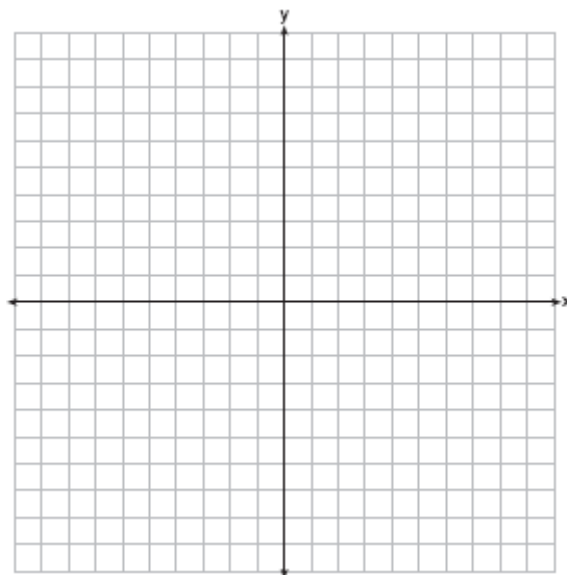


2. 010938ia, P.I. A.G.7

On the set of axes below, graph the following system of inequalities and state the coordinates of a point in the solution set.

$$2x - y \geq 6$$

$$x > 2$$



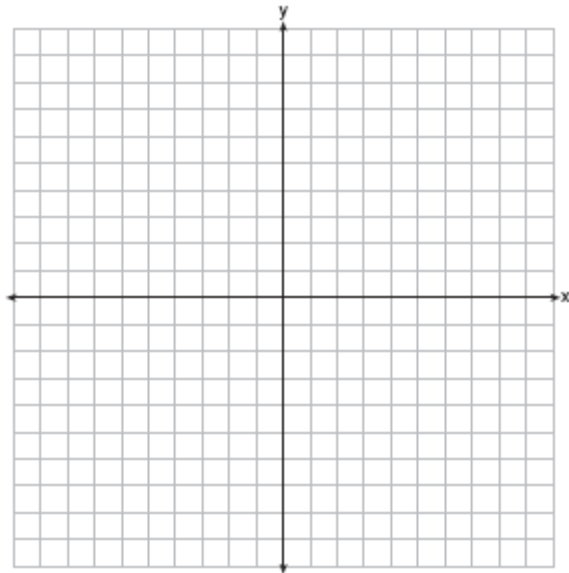
3. 010738a, P.I. A.G.7

Graph the following systems of inequalities on the accompanying set of axes and label the solution set S :

$$y > x - 4$$

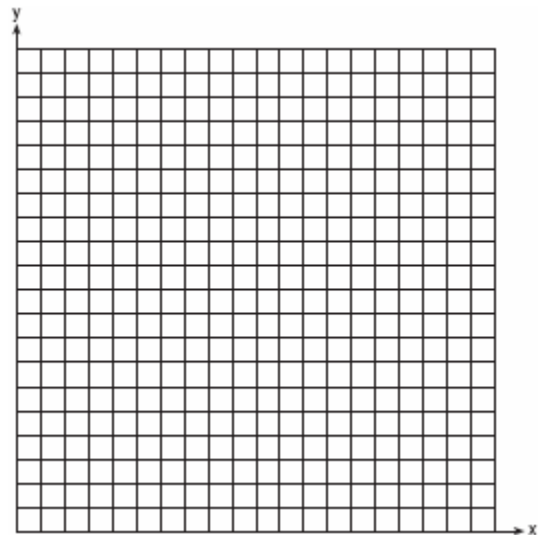
$$y + x \geq 2$$

[Only a graphic solution can receive full credit.]



4. 010234a, P.I. A.G.7

A company manufactures bicycles and skateboards. The company's daily production of bicycles cannot exceed 10, and its daily production of skateboards must be less than or equal to 12. The combined number of bicycles and skateboards cannot be more than 16. If x is the number of bicycles and y is the number of skateboards, graph on the accompanying set of axes the region that contains the number of bicycles and skateboards the company can manufacture daily.



A.G.7: Graph and solve systems of linear equations and inequalities with rational coefficients in two variables.

- [4] Both equations are graphed correctly, and at least one is labeled, and $(1, -3)$ is stated.
 - [3] Appropriate work is shown, but one computational, graphing, or labeling error is made, but an appropriate point of intersection is stated.
 - or [3] Both equations are graphed correctly and at least one is labeled, but the point of intersection is not stated or is stated incorrectly.
 - [2] Appropriate work is shown, but two or more computational, graphing, or labeling errors are made, but an appropriate point of intersection is stated.
 - or [2] Appropriate work is shown, but one conceptual error is made, but an appropriate point of intersection is stated.
 - or [2] Both equations are graphed correctly, but neither is labeled, and the point of intersection is not stated or is stated incorrectly.
 - or [2] $(1, -3)$, but a method other than graphic is used.
 - [1] Appropriate work is shown, but one conceptual error and one computational, graphing, or labeling error are made, but an appropriate point of intersection is stated.
 - or [1] One line is graphed and labeled correctly, but no further correct work is shown.
 - or [1] $(1, -3)$, but no work is shown.
 - [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
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- [4] Both inequalities are graphed and shaded correctly, and at least one is labeled, and a point in the solution set is identified.
 - [3] Appropriate work is shown, but one graphing error is made, such as drawing a solid line for $x > 2$ or shading incorrectly, but an appropriate point in the solution set is identified.
 - or [3] Both inequalities are graphed and shaded correctly, and a point in the solution set is identified correctly, but the graphs are not labeled or are labeled incorrectly.
 - or [3] Both inequalities are graphed and shaded correctly, and at least one is labeled, but no point in the solution set is identified.
 - [2] Appropriate work is shown, but two or more graphing errors are made, but an appropriate point in the solution set is identified.
 - or [2] Appropriate work is shown, but one conceptual error is made, such as graphing the lines $x = 2$ and $y = 2x - 6$ and identifying the point of intersection.
 - or [2] One of the inequalities is graphed and shaded correctly, and at least one is labeled, but no further correct work is shown.
 - [1] Appropriate work is shown, but one conceptual error and one graphing error are made, but an appropriate point in the solution set is identified.
 - or [1] Both inequalities are graphed incorrectly, but an appropriate point in the solution set is identified.
 - or [1] The lines $x = 2$ and $y = 2x - 6$ are graphed correctly, and at least one is labeled, but no further correct work is shown.
 - or [1] A point in the solution set is identified and shown to be correct by checking in both inequalities, but no graphs are drawn.
 - [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
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- [4] Both inequalities are graphed correctly and at least one is labeled, and the solution set is labeled S .
- [3] Appropriate work is shown, but one graphing error is made, such as drawing a solid line for $y > x - 4$ or shading incorrectly, but the solution set is labeled S .
- or [3] Both inequalities are graphed correctly and at least one is labeled, but the solution set is not labeled or is labeled incorrectly.
- or [3] Both inequalities are graphed correctly, the solution set is labeled, but neither inequality is labeled.
- [2] Appropriate work is shown, but two or more graphing errors are made, but an appropriate solution set is labeled.
- or [2] Appropriate work is shown, but one conceptual error is made, such as graphing the lines $y = -x + 2$ and $y = x - 4$ and labeling the point of intersection S .
- [1] One inequality is graphed and shaded correctly, but no further correct work is shown.
- or [1] The lines $y = -x + 2$ and $y = x - 4$ are graphed correctly, but no solution is indicated.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- [3] incorrect procedure.

- [4] The inequalities $x \leq 10$, $y \leq 12$, and $x + y \leq 16$ are graphed and shaded correctly on the given set of axes.
- [3] All inequalities are graphed and shaded correctly, but one incorrect type of line (dashed or broken) is used.
- or [3] All three inequalities are graphed correctly, but one inequality is not shaded or is shaded incorrectly.
- or [3] The inequality $x + y \leq 16$ is graphed correctly, but an error is made in graphing either the horizontal or vertical line, but they are shaded appropriately.
- or [3] Only two of the three inequalities are graphed correctly, but all three are shaded appropriately.
- [2] All three inequalities are graphed correctly, but two are shaded incorrectly.
- or [2] Only two of the three inequalities are graphed and shaded correctly.
- [1] Only one of the three inequalities is graphed and shaded correctly.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- [4] incorrect procedure.