Algebra 1

Topic: Systems of Linear Inequalities

Instructions

Solve and graph each system of linear inequalities on a coordinate plane. Show all work, including boundary lines, shading, and test points.

Practice Problems

1. **Tell whether the ordered pair is a solution of the system of linear inequalities.**

    (i) (-3,4); $y \leq 5$, $y > x + 2$

    (ii) (2,-1); $y \geq x - 3$, $y < -2x + 4$

    (iii) (0,2); $y > -x + 1$, $y \leq 2x + 3$

    (iv) (-1,-3); $y \geq -x - 2$, $y < 4x - 5$

2. **Graph the System of Linear Inequalities.**

    (i) $y > -2$, $y \leq 3x + 1$

    (ii) $x \geq -4$, $y < x + 5$

    (iii) $y \leq 6$, $y > -x + 4$

    (iv) $x + y \leq 3$, $y > -2x + 2$

    (v) $y \geq -3$, $y < \frac{2}{5}x + 4$

    (vi) $x - y > -1$, $y \leq \frac{3}{2}x - 4$

    (vii) $x + 2y \geq 5$, $y < -\frac{1}{2}x + 3$

    (viii) $2x + y \leq 6$, $y > -x + 2$

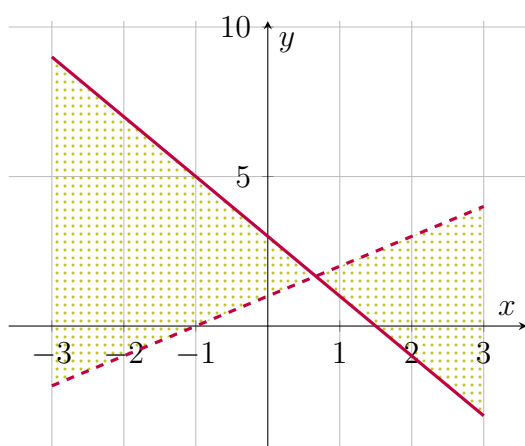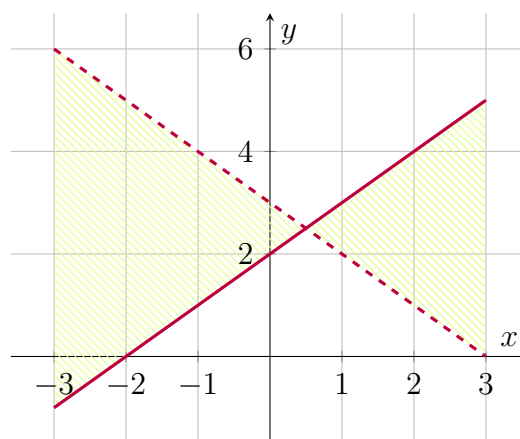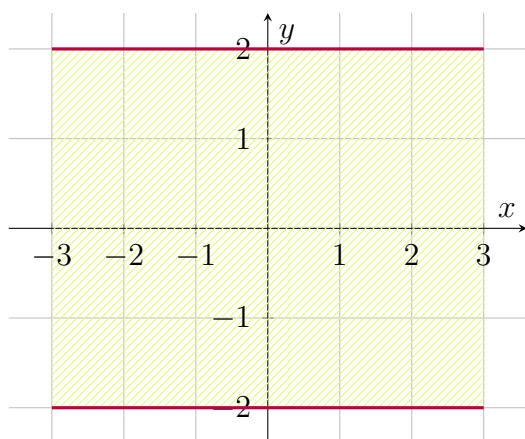   (ix) $-x + y \geq -3$, $y < 4 - 2x$

    (x) $x + y > 1$, $-x + 2y \leq 4$

3. **Write a System of Linear Inequalities Represented by the Graph.**
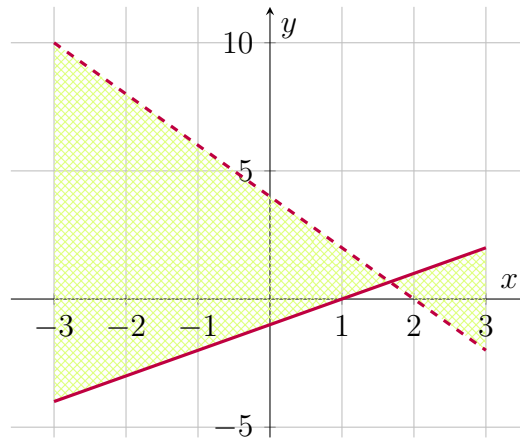
Multiple-Choice Questions

1. What is the solution set for the system $y > x + 1$ and $y \leq -x + 5$?

   A. The intersection of two shaded regions

   B. The union of two shaded regions

   C. No solution

   D. A single line

2. Which inequality corresponds to a boundary line $y = 3x - 2$ with a shaded region above?

   A. $y > 3x - 2$

   B. $y \geq 3x - 2$

   C. $y < 3x - 2$

   D. $y \leq 3x - 2$

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