

UNIT 2 • REASONING WITH LINEAR EQUATIONS AND INEQUALITIES**Lesson 8: Solving Linear Inequalities in Two Variables and Systems of Inequalities****Practice 2.8.2: Solving Systems of Linear Inequalities****B**

For problems 1–7, solve the given system by creating a graph.

1.
$$\begin{cases} y > 2x \\ y > -2x \end{cases}$$

2.
$$\begin{cases} y \geq 4x \\ y \geq -4x \end{cases}$$

3.
$$\begin{cases} y > x - 2 \\ y < x + 12 \end{cases}$$

4.
$$\begin{cases} y > x - 5 \\ y > -4x + 8 \end{cases}$$

5.
$$\begin{cases} x + y \leq 4 \\ 3x + y \geq 0 \\ x \leq 0 \\ y \geq 0 \end{cases}$$

6.
$$\begin{cases} 2x - y \leq 1 \\ 4x - y > 0 \\ x \geq 0 \\ y \leq 0 \end{cases}$$

7.
$$\begin{cases} 2x + y \leq 14 \\ 2x - y \leq 14 \\ x \geq 0 \\ y \leq 0 \end{cases}$$

continued

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For problems 8–10, use the given information to answer the questions that follow.

8. Barry is working hard to earn the rank of Eagle Scout. His project is to build wooden benches and planters for a local children's hospital. It takes 1 hour to cut the pieces of wood for each bench, and 0.5 hours to cut the pieces for each planter. Barry plans to spend no more than 8 hours cutting the pieces of wood.

After Barry has all the pieces cut, he can build and sand each item. It takes 4 hours to build and sand each bench, and 2 hours to build and sand each planter. Barry plans to spend no more than 16 hours building and sanding the items.

- What is a system of inequalities that models this scenario?
 - What is the graph of the solution to this system?
9. Camryn is making puppets for theater class. It takes 1 hour to sew a cloth puppet body, and 5 hours to build a wooden puppet body. She has less than 15 hours set aside for these tasks.

After Camryn makes the puppet bodies, she has to decorate them. It takes 3 hours to sew decorations onto a cloth puppet, and 2 hours to paint a wooden puppet. Camryn plans to spend no more than 12 hours decorating puppets.

- What is a system of inequalities that models this scenario?
 - What is the graph of the solution to this system?
10. Jerrod is a freelancer who writes articles for two different magazines. It takes him 2 hours to research an article for a lifestyle magazine, and 3 hours to research an article for a finance magazine. He plans to spend no more than 15 hours per week on research.

After Jerrod finishes his research, he has to write and revise each article. Lifestyle articles are usually shorter than finance articles, so he plans to spend 2 hours writing and revising each lifestyle article and 5 hours writing and revising each finance article. He spends 20 hours per week on writing and revision.

- What is a system of inequalities that models this scenario?
- What is the graph of the solution to this system?