

NAME: \_\_\_\_\_

## UNIT 2 • REASONING WITH EQUATIONS AND INEQUALITIES

### Lesson 3: Solving Linear Inequalities in Two Variables and Systems of Inequalities

#### Practice 2.3.2: Solving Systems of Linear Inequalities

Solve the systems graphically.

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

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

$$3. \begin{cases} y > x - 4 \\ y < 2x + 10 \end{cases}$$

$$4. \begin{cases} y > x - 10 \\ y > -3x + 4 \end{cases}$$

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

$$6. \begin{cases} 2x - y > 0 \\ 2x - y \geq 2 \\ x \leq 5 \\ y \geq 0 \end{cases}$$

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

*continued*

**UNIT 2 • REASONING WITH EQUATIONS AND INEQUALITIES****Lesson 3: Solving Linear Inequalities in Two Variables and Systems of Inequalities**

Read each scenario and answer the questions that follow.

8. A school supply company produces wooden rulers and plastic rulers. It takes 30 minutes to cut, shape, and sand a wooden ruler. It takes 15 minutes to mold, dry, and cut a plastic ruler. There is a maximum amount of 490 minutes per day set aside for these tasks.

It takes 6 minutes to paint the lines and numbers on a wooden ruler. It takes 3 minutes to paint the lines and numbers on a plastic ruler. There is a maximum amount of 180 minutes per day set aside for this task.

- What is the system of inequalities that models this scenario?
  - What is the graph of the solution to this system?
9. A bicycle shop sells road bikes and town cruisers. It takes 2 hours to assemble a road bike. It takes 1 hour to assemble a town cruiser. There is a maximum of 60 hours to complete the assembly for the week. After assembly, for safety reasons the assembly needs to be checked and tested. It takes  $\frac{1}{2}$  hour to check and test the road bikes and  $\frac{1}{4}$  hour to check and test the town cruisers. There is a maximum of 20 hours to complete these tasks.
- What is the system of inequalities that represents this situation?
  - What is the graph of the solutions?
10. Jana is a caterer. She's making lasagna cupcakes and Gorgonzola onion tarts for a party, and only has limited time to finish. She already has all her fillings ready and just needs to assemble and bake the appetizers. It takes 10 minutes to assemble each pan of lasagna cupcakes. For the Gorgonzola onion tarts, it takes 15 minutes to roll out and fill each pan. She has a maximum of 2 hours to assemble the appetizers.

Next she needs to bake the appetizers. Each pan of lasagna cupcakes takes 20 minutes to bake. Each pan of Gorgonzola tarts takes 6 minutes to bake. She has 60 minutes to bake the appetizers.

- What is the system of inequalities that models this scenario?
- What is the graph of the solutions?