

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

## **UNIT 2 • REASONING WITH EQUATIONS AND INEQUALITIES**

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

#### **Problem-Based Task 2.3.1: Cupcakes**

The class president has asked you to make your delicious cupcakes for the next student council fund-raiser. With the fund-raiser fast approaching, you have asked your friends to help you out. Some friends will frost the cupcakes and others will decorate the cupcakes. At most, 5 friends have agreed to help. Write and graph an inequality that describes the number of friends who can be assigned to each task if there are at most 5 friends available.

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##### Coaching

- a. What tasks are available for friends to do?
- b. How many friends at most can help?
- c. If  $x$  = frosting the cupcakes and  $y$  = decorating the cupcakes, what is the inequality that represents the number of friends performing each task with the number of friends available?
- d. What is the inequality represented in slope-intercept form?
- e. What is the graph of the line or the boundary associated with the inequality?
- f. Where should the boundary stop? Explain.
- g. Should you use a solid line or a dashed line when graphing the boundary? Explain.
- h. What test point can be used? Explain.
- i. Where should you shade the graph? Explain.
- j. Where should the shading stop? Explain.
- k. What inequality describes the number of friends who can perform each task if there are at most 5 friends available? Graph the inequality.