

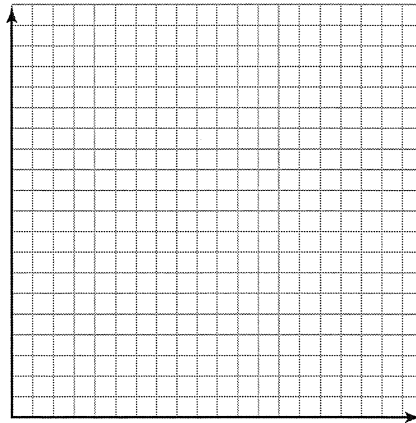
Name \_\_\_\_\_ Date \_\_\_\_\_

### Our Biggest Sale of the Season!

#### Systems with More Than Two Linear Inequalities

1. The Brunstown Ballet Company needs to rent a venue for their Holiday Production of the *Nutcracker*. There are a number of arenas they are considering. The arenas have seating capacities that range from 800 to 1876 seats. The management of the Ballet Company knows the ticket sales may not be good this year but their goal is to sell between 65% and 90% of the available seats. Whichever arena they choose, one hundred seats must be set aside for the Ballet Company's donors.
  - a. Write a system of inequalities that represents the problem situation. Define your variables.

- b. Graph each inequality on the grid shown. Include labels and units of measure for each axis.



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- c. One of the arenas they are considering has 1200 available seats. Determine the minimum and maximum number of seats they would need to sell in order for management to reach their goal.
- d. If the company sold 900 seats, what is the range of seating capacities for the arenas they may have rented?
- e. If they rented an arena that had a 1300-seat capacity and sold 800 tickets, would management reach their goal? Explain your reasoning.

