

## Systems of Inequalities Word Problems

1. The ninth graders are hosting the next school dance. They would like to make at least a \$500 profit from selling tickets. The ninth graders estimate that at most 300 students will attend the dance. They will earn \$3 for each ticket purchased in advance and \$4 for each ticket purchased at the door.

- Write a system of inequalities to represent this situation.
- Graph each inequality on the grid.
- Suppose only 30 people buy advance tickets. How many people would need to buy tickets at the door? (Identify one realistic solution). Justify your answer.

2. In order to prepare for your summer bash, you go to the supermarket to buy hamburgers and chicken. Hamburgers cost \$2 per pound and chicken costs \$3 per pound. You have no more than \$30 to spend. You expect to purchase at least 3 pounds of hamburgers.

- Write a system of inequalities to represent this situation.
- Graph the system of inequalities on the grid.
- Give three possible combinations for buying hamburgers and chicken for your summer bash.
- Justify your answers.

3. Jenny is making jewelry for an Arts and Crafts show. She would like to make at least \$100 in sales. She estimates that she will sell at most 50 pieces of jewelry. The bracelets that she is selling cost \$2 and the necklaces cost \$3.

- Write a system of inequalities to represent this situation.
- Graph each inequality on the grid below.
- Give two possible combinations of bracelets and necklaces that can be sold in order for Jenny to meet her goal. Justify your answer.

4. Jason is buying wings and hot dogs for a party. One package of wings costs \$7. Hot dogs cost \$5 per package. He must spend no more than \$40.

- Write an inequality to represent the cost of Jason's food for the party.
- Jason knows that he will be buying at least 5 packages of hot dogs. Write an inequality to represent this situation.
- Graph both inequalities. Give two options for Jason when buying wings and hot dogs.

A Dinner Theatre actress is paid \$250 per day to rehearse the play and \$500 per day to perform in front of an audience. In one season, an actress earned between \$2000 and \$5000.

- Write a system of inequalities that represents this situation.
- Graph the system of inequalities on the grid.
- Identify two different ways the actress may have earned her salary. Justify your answers.