Lesson 2.2.3: Solving Problems Involving Systems of Linear Inequalities in Two Variables

How to Solve Problems Involving Linear Inequalities in Two Variables?

1. Understand the problem. Decide what are asked for and what information is given.
2. Write the inequalities that represent the relationships stated in the problem.

Practice Exercises 2.2.3

Solve each problem completely.

1. It costs Roy ₱10.00 to make a toy car and ₱15.00 to make a toy truck. He has to produce at least 20 toys but production cost cannot exceed ₱300.00. Find a system of inequality that shows the possible combinations of the number of toy cars (c) and toy trucks (t) that can be made.
2. Aliyah, a working student, has two tutees: one paying ₱250.00 per session and another paying ₱300.00 per session. She can teach at most 15 sessions per month but must earn at least ₱6,000 to pay expenses while attending college. Write a system of inequality that shows the various ways she can schedule her time to achieve her goal.
3. Your mother is planning a menu for your birthday. She plans to serve pork barbecue and chicken nuggets. She expects to serve at least 50 kilos of meat. The pork (p) costs ₱200.00 per kilo and the chicken meat (c) costs ₱180.00 per kilo. She has a budget of at most ₱10,000.00 for meat on your birthday. Write a system of inequalities to model this situation.

Activity 2.2.3

Solve each problem completely.

1. Carlos works at a movie theatre selling tickets. The theatre has 300 seats and charges ₱75.00 for adults and ₱55.00 for children. The theatre expects to make at least ₱20,000 for each showing. Write a system of inequalities to model this situation.
2. Ana and Jean want to improve their yards by planting roses and sunflower. The cost of one pot of rose is ₱80 and the cost of one pot of sunflower is ₱120. They do not want to spend more than ₱600 and they want to buy at least 6 plants. Write a system that represents the possible number of roses x, and sunflower plants y, that could be bought to meet these conditions.
3. Cathy is buying plants and soil for her garden. The plants cost ₱100 each and the soil cost ₱40 per bag. She wants to buy at least 5 plants. She cannot spend more than ₱1,000. Write a system of inequalities to model this situation.

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