Rck 31

NAME _____ DATE _____ PEF

3 **Chapter 3 Open-Ended Assessment** SC

Demonstrate your knowledge by giving a clear, concise solution to each problem. Be sure to include all relevant drawings and justify your answers. You may show your solution in more than one way or investigate beyond the requirements of the problem.

1. The square of Janet's age is 400 more than the square of the sum of Kim's and Sue's ages. Kim's and Sue's ages total 10 less than Janet's age. Find the square of the sum of the ages of Janet, Kim, and Sue. Explain your reasoning.

2. A feasible region has vertices at (0, 8), (6, 0), and (0, 0).
   a. Write a system of inequalities whose graph forms this feasible region.
   b. Explain how to find the maximum and minimum values of $f(x, y) = x - y$ for the region.

3. Explain what the algebraic solution of a system of two linear equations is and what that means in terms of the graphs of the equations of the system.

4. When describing a system of two linear equations, a student indicated that the system was inconsistent and dependent. Discuss the meaning of the student's description. Then assess the student's understanding of these terms.

5. A business owner asks the company finance manager to develop a formula, or function, for the cost incurred in the production of their products, and another function for the revenue (money collected) that the company earns when the products are sold. In preparing the report for the owner, the finance manager prepares a graph which shows both the cost function and the revenue function. The business owner, on seeing the graph of two parallel lines, makes a major business decision. What might that decision be and why would it be made?

6. Explain what it means for a system of two linear inequalities to have no solution. Sketch a graph of such a system and write the system of inequalities represented by your graph.