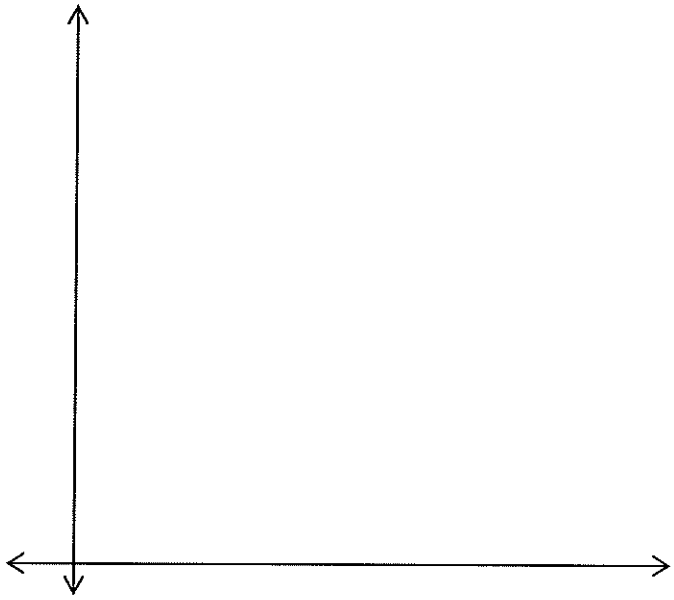
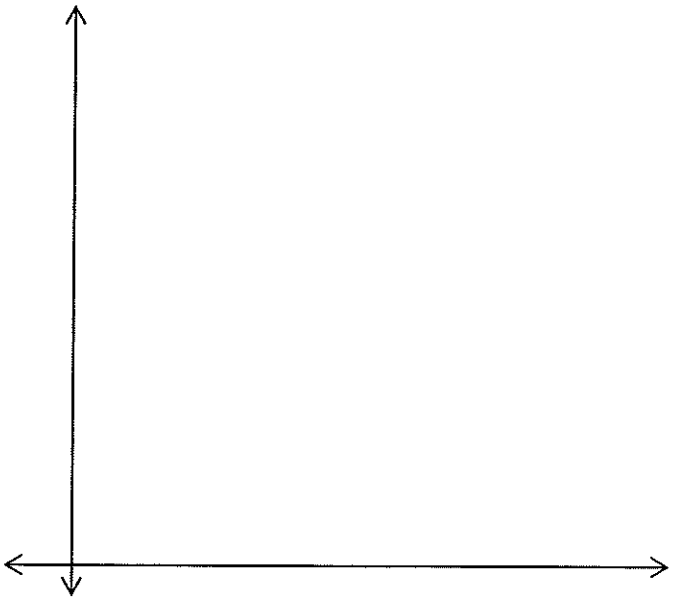
Honors Finite Math Group Work Chapter 3 Name_____

Use linear programming to answer the following questions.

1. An office manager needs to purchase new filing cabinets. He knows that Ace cabinets cost $40 each, require 6 square feet of floor space, and hold 24 cubic feet of files. On the other hand, each Excello cabinet costs $80, requires 8 square feet of floor space, and holds 36 cubic feet. His budget permits him to spend no more than $560 on the cabinets, while the office has space for no more than 72 square feet of cabinets. The manager desires the greatest storage capacity within the limitations imposed by funds and space. How many of each type should he buy?



2. A 4-H member raises only geese and pigs. She wants to raise no more than 16 animals, including no more than 10 geese. She spends $5 to raise a goose and $15 to raise a pig, and she has $180 available for this project. Each goose produces $6 dollars in profit and each pig produces $20 in profit. The 4-H member wishes to maximize her profits. How many of each should she raise?



3. Certain laboratory animals must have at least 30 grams of protein and at least 20 grams of fat per feeding period. These nutrients come from food A, which costs 18 cents per unit and supplies 2 grams of protein and 4 grams of fat; and food B, which costs 12 cents per unit and supplies 6 grams of protein and 2 grams of fat. Food B is bought under a long-term contract requiring that at least 2 units of B be used per serving. How much of each food must be bought to produce the minimum cost per serving?