

## Algebra IIA class notes 3-4

### Linear Programming

#### Warm Up

Determine if the given ordered pair is a solution of  $\begin{cases} x + y \geq 6 \\ x - 2y > 10 \end{cases}$

- 1) (3, 3)
- 2) (12, 0)
- 3) (10, 1)
- 4) (15, 2)

#### Objectives:

Solve linear programming problems.

#### Vocabulary:

linear programming, constraint, feasible region & objective function

Green roofs are covered with plants instead of traditional materials like concrete or shingles to help lower heat and improve air quality.

The plants landscape architects choose might depend on the price, the amount of water they require, and the amount of carbon dioxide they absorb.

B) Graph the feasible region for the following constraints.

$$x \geq 0$$

$$y \geq 1.5$$

$$2.5x + 5y \leq 20$$

$$3x + 2y \leq 12$$

## Example 2: Solving Linear Programming Problems

- A) Yum's Bakery wants to maximize its profits from bread sales. One batch of  $A$  yields a profit of \$40. One batch of  $B$  yields a profit of \$30. Use the profit information and the data from Example 1 to find how many batches of each bread the bakery should bake.

### Example 3: Problem-Solving Application

- A) Sue manages a soccer club and must decide how many members to send to soccer camp. It costs \$75 for each advanced player and \$50 for each intermediate player. Sue can spend no more than \$13,250. Sue must send at least 60 more advanced than intermediate players and a minimum of 80 advanced players. Find the number of each type of player Sue can send to camp to maximize the number of players at camp.

**Homework:** Read Section 3-4 & Take Notes from the reading (T,D,P's)

Complete exercises #1-15 pg. 209