Linear Programming Assessment

The sports store makes and sells the latest bands of shoes, Pie Airs and Radicals. It takes 4 lbs. of leather and 10 feet of string to make a dozen Pie Airs. To make Radicals it takes 20 lbs. of leather and 30 feet of string. The store makes a profit of $15.00 for Pie Airs and $45.50 for Radicals. The store has 600 lbs. of leather and 1200 feet of string.

1. Identify the objective function.

2. Identify the constraints.

3. Graph the feasible region based on the constraints.

4. How many of each shoe should be made to maximize your profit? Include vertices and calculations using the function objectives

5. What is the maximum profit?

Linear Programming Assessment

1. The sports store makes and sells the latest bands of shoes, Pie Airs and Radicals. It takes 4 lbs. of leather and 10 feet of string to make a dozen Pie Airs. To make Radicals it takes 20 lbs. of leather and 30 feet of string. The store makes a profit of $15.00 for Pie Airs and $45.50 for Radicals. The store has 600 lbs. of leather and 1200 feet of string.

a. Identify the objective function.

Function Objective: P = 15x + 45.50y

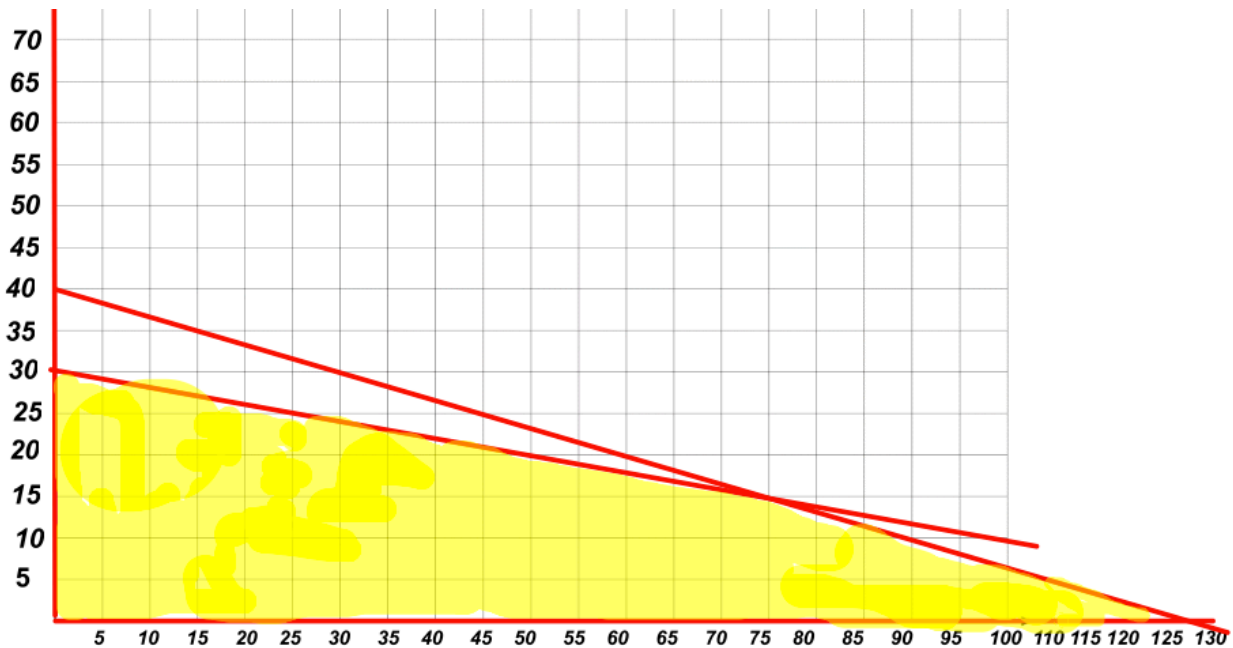b. Identify the constraints?

$x -> Pie\ Airs$
$y -> Radicals$
$4x + 20y \leq 600$
$10x + 30y \leq 1200$
$x \geq 0$
$y \geq 0$

c. Graph the feasible region based on the constraints.

d. How many of each shoe should be made to maximize your profit? Include vertices and calculations using the function objectives

vertices	15x + 45.50y	Profit
(75, 15)	15(75)+45.50(15)	$1807.50
(0, 30)	15(0) + 45.50(30)	$1365
(120, 0)	15(120) + 45.5(0)	$1800

The company should make 75 Pie Airs and 15 Radicals.

c. What is the maximum profit?

The maximum profit is $1807.50