

Name _____

Date _____

$$n + t \leq 1200$$

non-stop = n
two-stop = t

Advanced Algebra

Focused Instruction Unit 6 Linear Programming

LP Problems #4 and #5

$$\frac{n}{150} + \frac{t}{100} \leq 10$$

$$n \leq 150$$

$$t \leq 100$$

The Door problem and the Tourist Problem

$$n \leq 150$$

$$t \leq 100$$

#4: The Tourist Problem

A tourist agency can sell up to 1200 travel packages for the Super Bowl. The packages they can sell include airfare, weekend accommodations, and a choice of 2 types of flights. A non-stop flight and a two stop flight. Each non-stop flight can carry up to 150 people and each two stop flight can carry up to 100 people. The travel agency can locate no more than 10 planes for the travel package. Packages of the non-stop flight sell for \$1200. Packages for the two stop flight sell for \$900. Assume each plane will carry the maximum amount of people. What should they sell to make the maximum amount of revenue?

#5: The Door Problem

A company has two plants that produce windows and doors. They can make a profit of \$5 on each window and a profit of \$3 on each door. In plant A, each window requires 3 hours and each door requires 2 hours. Plant A has 18 hours available for manufacturing. In plant B each window requires 1.5 hours and each door requires .75 hours. Plant B has 7.5 hours available for assembly. How many of each should they produce to make the most profit?

Profit:
 $3d + 5w =$

	A	B
D	2	.75
W	3	1.5
	≤ 18	≤ 7.5

Constraints:

$$2d + 3w \leq 18 \quad (9,0) (0,6)$$

$$.75d + 1.5w \leq 7.5 \quad (10,0) (0,5)$$

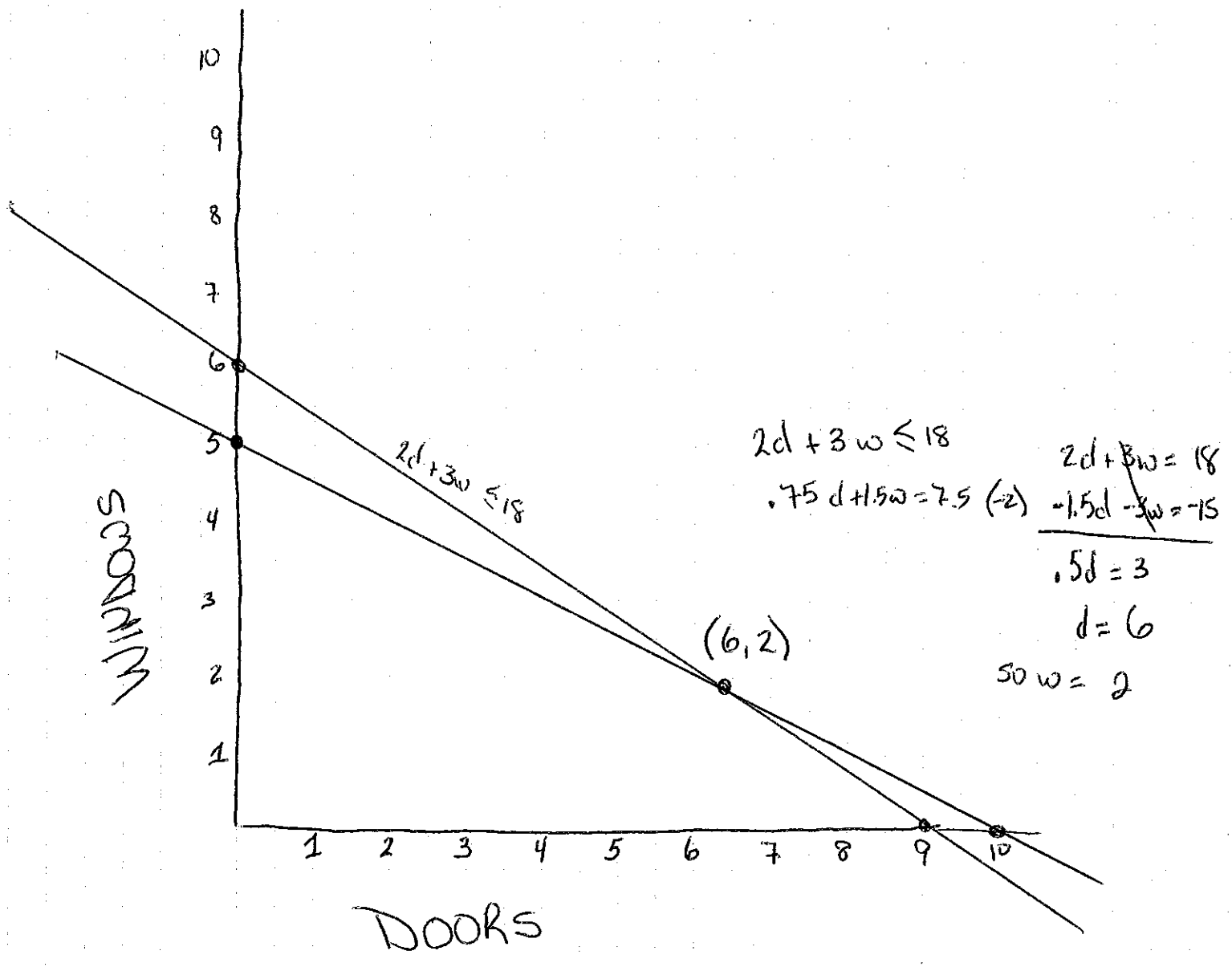
#5 The Door Problem

let d = door
 w = window

Constraints:

$$2d + 3w \leq 18 \quad (9, 0) \quad (0, 6)$$

$$.75d + 1.5w \leq 7.5 \quad (10, 0) \quad (0, 5)$$



#4 The Tourist Problem

let n = non-stop flights
 t = two-stop flights

Constraints:

$$\begin{cases} n+t \leq 1200 \\ \frac{n}{150} + \frac{t}{100} \leq 10 \end{cases}$$

$$300 \cdot \frac{n}{150} + \frac{300}{1} \cdot \frac{t}{100} \leq 10 \cdot 300$$

$$2n + 3t \leq 3,000 \quad (1500, 0) \quad (0, 1000)$$

most profit
 I should
 sell 1200 non-stop
 And no two-stop

	$1200n + 900t$	
$(0, 1000)$	$1200(0) + 900(1,000)$	900,000
$(600, 600)$	$1200(600) + 900(600)$	\$1,260,000
$(1200, 0)$	$1200(1200) + 900(0)$	\$1,440,000

