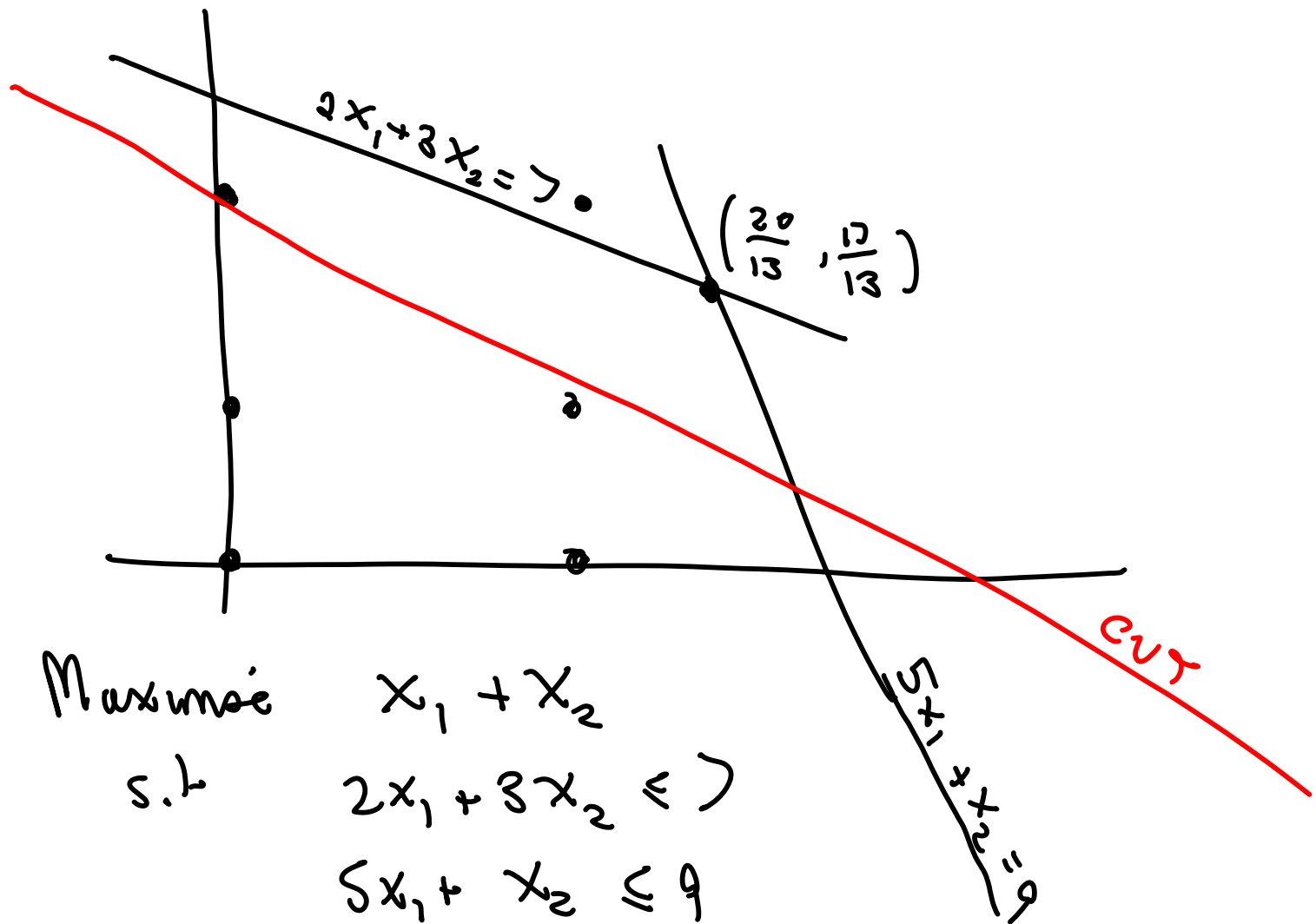


10/11/10



Maximize $x_1 + x_2$
s.t. $2x_1 + 3x_2 \leq 7$
 $5x_1 + x_2 \leq 9$
 $x_1, x_2 \geq 0$ integers

BV	x_1	x_2	x_3	x_4	R
OC_0	-1	-1			0
x_3	2	3	1		7
x_4	5	1		1	9

BV	x_1	x_2	x_3	x_4	R
OC_0		$-\frac{4}{5}$		$\frac{1}{5}$	$\frac{9}{5}$
x_3		$\boxed{\frac{13}{5}}$	1	$-\frac{2}{5}$	$\frac{17}{5}$
x_1	<u>1</u>	$\frac{1}{5}$		$\frac{1}{5}$	$\frac{9}{5}$

BV	x_1	x_2	x_3	x_4	y_1	R
x_0			$\frac{4}{13}$	$\frac{1}{13}$		$\frac{37}{13}$
x_2		<u>1</u>	$\frac{5}{13}$	$-\frac{2}{13}$		$\frac{17}{13}$
x_1	<u>1</u>		$-\frac{1}{13}$	$\frac{3}{13}$		$\frac{20}{13}$
y_1			$-\frac{4}{13}$	$-\frac{1}{13}$	<u>1</u>	$-\frac{11}{13}$

$$x_0 + \frac{4}{13}x_3 + \frac{1}{13}x_4 = \frac{37}{13}$$

$$\frac{4}{13}x_3 + \frac{1}{13}x_4 - y_1 = \frac{11}{13}$$

BV	x_1	x_2	x_3	x_4	y_1	R
OC_0			$\frac{4}{13}$	$\frac{1}{13}$		$\frac{37}{13}$
x_2		<u>1</u>	$\frac{5}{13}$	$-\frac{2}{13}$		$\frac{17}{13}$
x_1	<u>1</u>		$-\frac{1}{13}$	$\frac{3}{13}$		$\frac{20}{13}$
y_1			$-\frac{4}{13}$	$-\frac{1}{13}$	<u>1</u>	$-\frac{11}{13}$

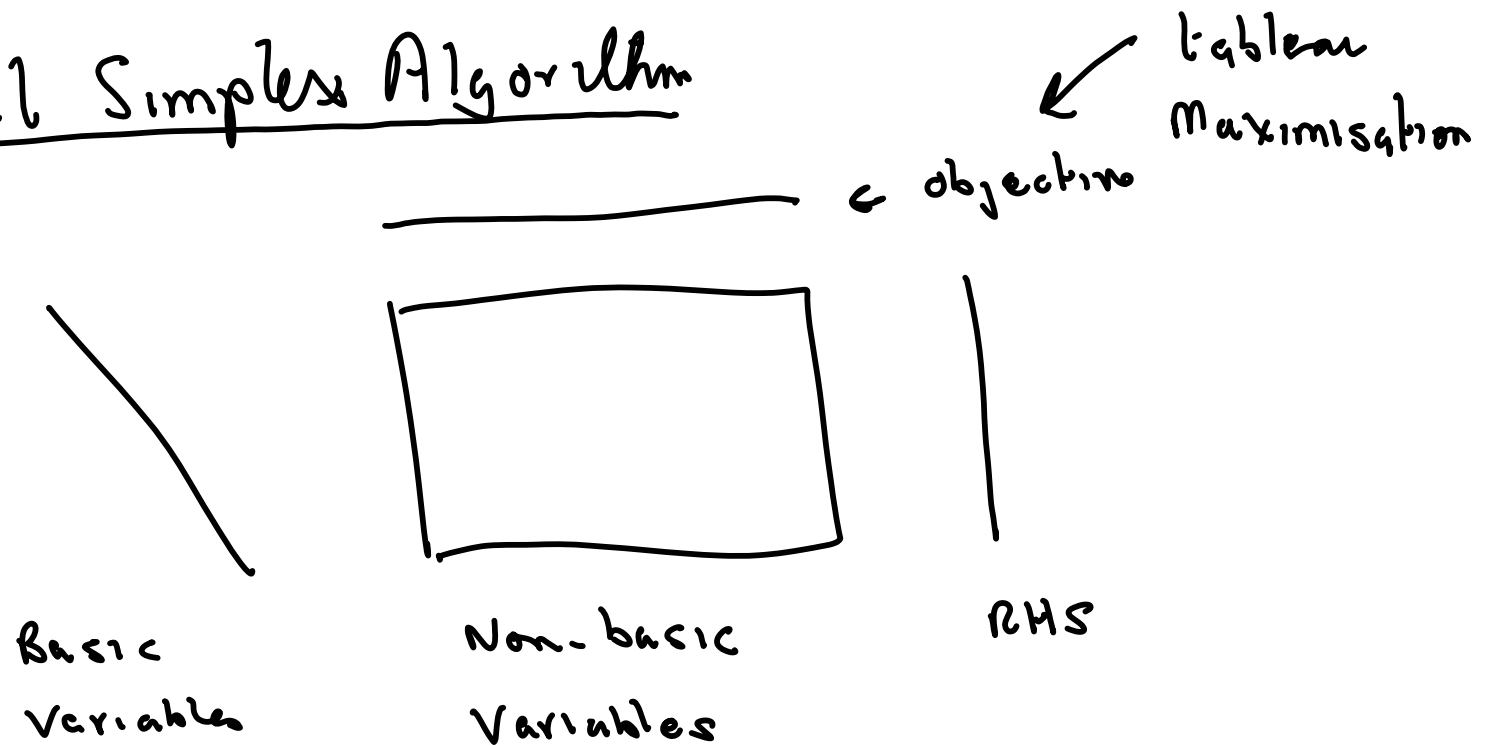
BV	x_1	x_2	x_3	x_4	y_1	R
oc_0					1	2
x_2		<u>1</u>	1		-2	3
x_1	<u>1</u>		-1		3	-1
y_1			$\dot{4}$	1	-13	11

BV	x_1	x_2	x_3	x_4	y_1	R
OC_0					1	2
x_2	1	<u>1</u>			1	2
x_3	<u>-1</u>		1		-3	1
y_1	4			1	-1	7

Optimal Solution

$$x_1 = 0 \quad x_2 = 2$$

Dual Simplex Algorithm



≥ 0
 dual feasible

(primal)
 ≥ 0 feasible

Simplex: Increase objective & maintain feasibility

Dual Simplex: Decrease objective & maintain dual feasibility