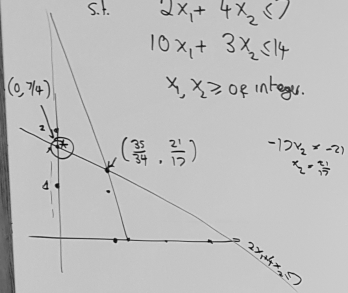


Maximize  $3x_1 + 4x_2$

s.t.  $2x_1 + 4x_2 \leq 7$

$10x_1 + 3x_2 \leq 14$

$x_1, x_2 \geq 0$  integer.



R.V.	$x_1$	$x_2$	$x_3$	$x_4$	$\sum_1$	R.H.S
$x_0$	-1	-4				0
$x_3$	2	4	1			7
$x_4$	10	3		1		14
<hr/>						
$x_0$	1		1			7
$x_2$	$\frac{1}{2}$	1	$\frac{1}{4}$			$\frac{7}{4}$
$x_4$	$\frac{17}{2}$		$-\frac{3}{4}$	1		$\frac{35}{4}$
$\sum_1$	$\frac{-1}{2}$		$-\frac{1}{4}$		1	$-\frac{3}{4}$

Solves LP

$\frac{1}{2}x_1 + x_2 + \frac{1}{4}x_3 = \frac{7}{4}$

Integer solutions do satisfy

$\frac{1}{2}x_1 + \frac{1}{4}x_3 \geq \frac{3}{4}$

$-\frac{1}{2}x_1 - \frac{1}{4}x_3 + \sum_1 = -\frac{3}{4}$

primal infeasible  
dual feasible

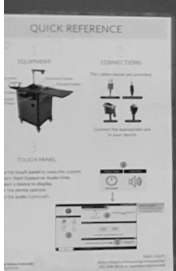
B.V.	$x_1$	$x_2$	$x_3$	$x_4$	$\xi_1$	$\xi_2$	RHS
$x_0$			$\frac{1}{2}$		2		$\frac{11}{2}$
$x_2$		1			1		1
$x_4$			$\ominus 5$	1	17		-4
$x_1$	1		$-\frac{1}{2}$		-2		$\frac{3}{2}$
$x_0$				$\frac{1}{10}$	$\frac{33}{10}$		$\frac{51}{10}$
$x_2$		1			1		1
$x_3$			1	$-\frac{1}{5}$	$-\frac{17}{5}$		$\frac{4}{5}$
$x_1$	1			$\frac{1}{10}$	$-\frac{3}{10}$		$\frac{11}{10}$
$\xi_2$				$-\frac{1}{10}$	$-\frac{7}{10}$	1	$-\frac{1}{10}$

$$x_0 + \frac{1}{10}x_4 + \frac{33}{10}\xi_1 = \frac{51}{10}$$

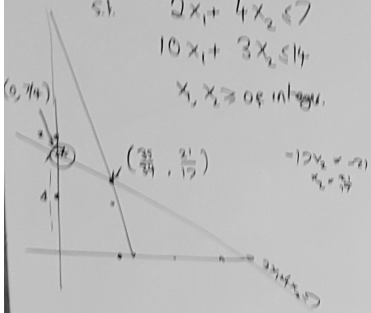
$$\downarrow$$

$$\frac{1}{10}x_4 + \frac{7}{10}\xi_1 \geq \frac{1}{10}$$

$$-\frac{1}{10}x_1 - \frac{7}{10}\xi_1 + \xi_2 = -\frac{1}{10}$$



Maximize  $3x_1 + 4x_2$   
 s.t.  $2x_1 + 4x_2 \leq 7$   
 $10x_1 + 3x_2 \leq 14$   
 $x_1, x_2 \geq 0$  or integer.



BV	$x_1$	$x_2$	$x_3$	$x_4$	$\text{RHS}$
$x_0$					5
$x_2$		1			1
$x_3$			1		1
$x_1$	1				1
$x_4$				1	1

Optimal  
&  
Integer

