Campus Liquids, Inc

Variables: $x_1 \triangleq$ # of bottles of bourbon (in 1000)

$x_2 \triangleq$ # of bottles of blended whiskey (in 1000)

Objective: maximize (profit) $2x_1 + 2.50x_2$

$[(5-3)x_1 + (4.50-2)x_2]$

Constraints:

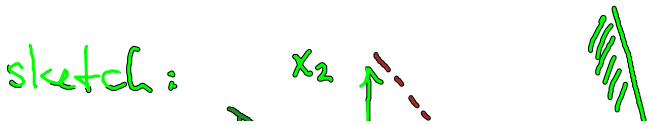
$3x_1 + 4x_2 \leq 20$ (I) (machine hours)

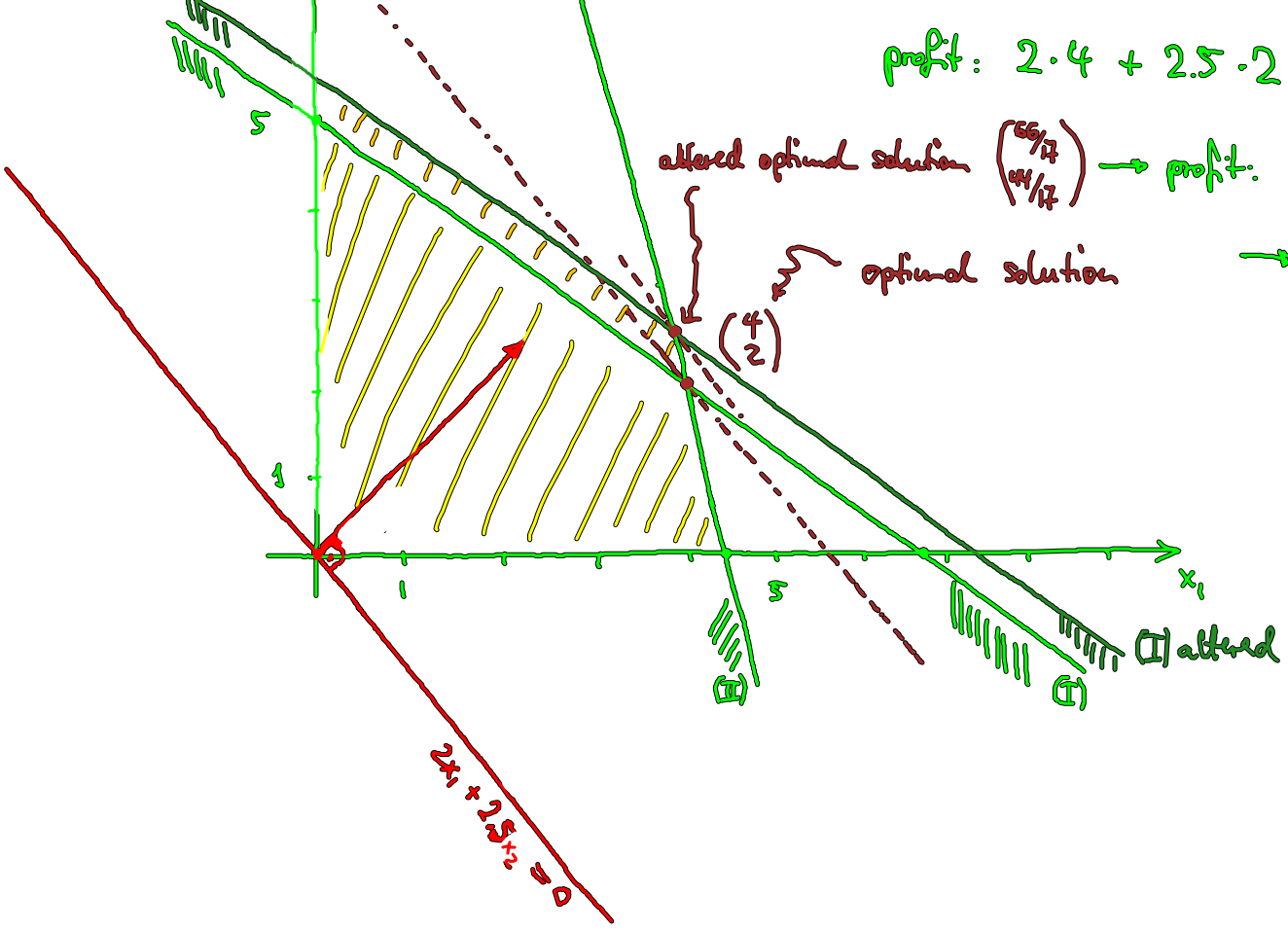
$x_1 + 0.2x_2 \leq 4.4$ (II) (production cost)

$[3x_1 + 2x_2 \leq 4.4 + 0.4(5x_1 + 4.5x_2)]$

$x_1 \geq 0$

$x_2 \geq 0$

sketch: 



alternative: maximize x_3

subject to

$$\begin{aligned} 2x_1 + 2.5x_2 - x_3 &\geq 13 \\ 3x_1 + 4x_2 &\leq 22 \\ x_1 + 0.2x_2 &\leq 4.4 \\ x_1 &\geq 0 \\ x_2 &\geq 0 \\ x_3 &\geq 0 \end{aligned}$$

Another example: Berlin airlift

1 Cargo unit ≙ 1 airplane carry unit ≙ 2000 t

TO BE CONTINUED ...