PL

Système d'inéquations ✓

$$3x + 4y \leq 200$$

$$8x + 5y \leq 400$$

$x, y \geq 0$ ← classique

$x \leq 40$

$y \leq 40$

d_1 : $3x + 4y = 200$

d_2 : $8x + 5y = 400 \iff y = -\frac{8}{5}y + 80$ (pente, O.O.)

d_3 : $x = 40$

d_4 : $y = 40$

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d_1 : $3x + 4y = 200 \iff 4y = -3x + 200$

$y = -\frac{3}{4}x + 50$ (pente, O.O.)

$3x + 4 \cdot 0 = 200$

$3x = 200$

$x = \frac{200}{3} = 66,\bar{6}$

$x = 0 ; y = 50$ O.O.

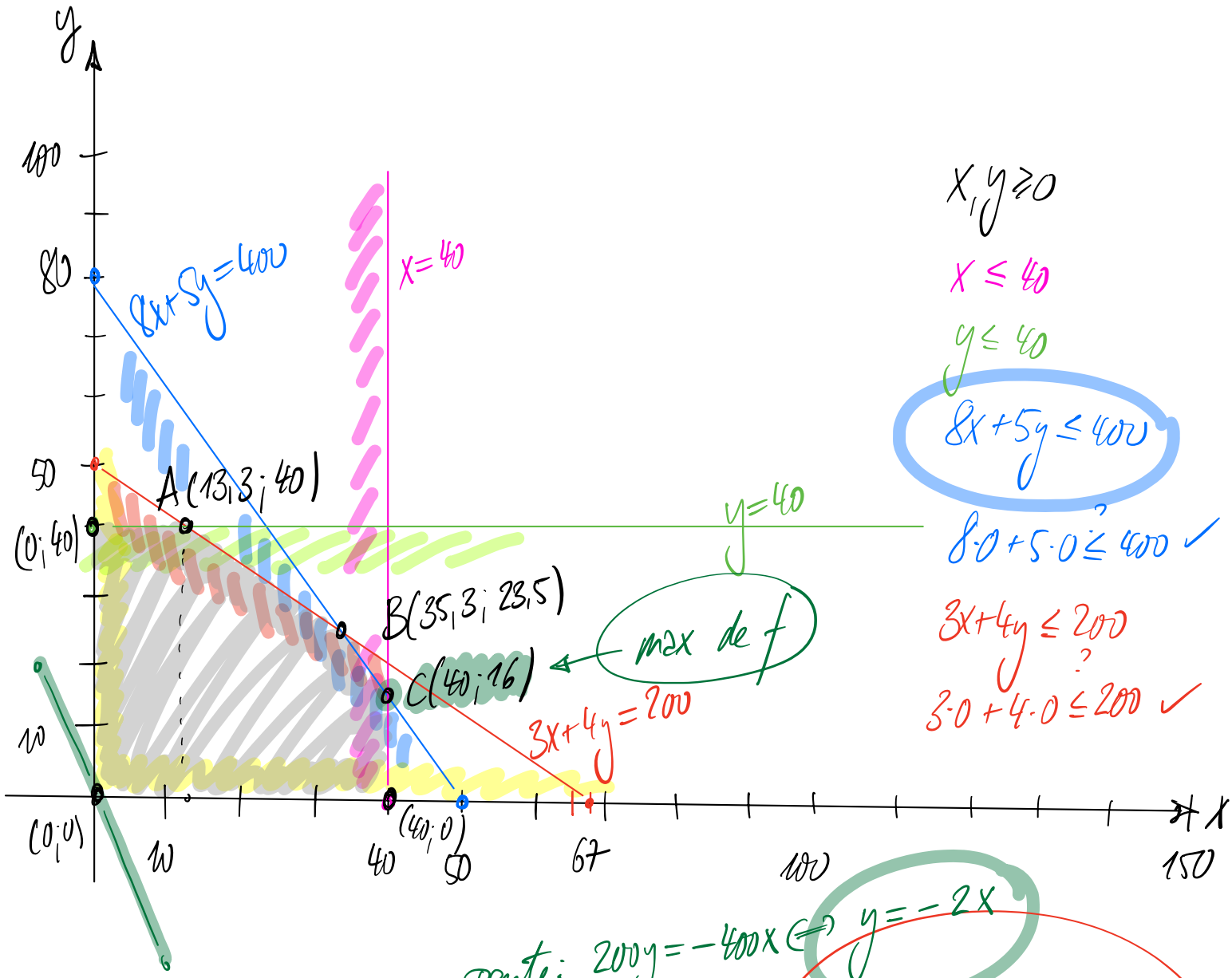
$y = 0 ; x \simeq 66,67 \simeq 66,7 \simeq 67$

$x = 67 ; y = 0$

d_2 : $y = -\frac{8}{5}x + 80$

$x = 0 ; y = 80$

$x = 50 ; y = 0$



$x, y \geq 0$

$x \leq 40$

$y \leq 40$

$8x+5y \leq 400$?

$8 \cdot 0 + 5 \cdot 0 \leq 400$ ✓

$3x+4y \leq 200$?

$3 \cdot 0 + 4 \cdot 0 \leq 200$ ✓

pente : $200y = -400x \iff y = -2x$

On donne $f(x) = 400 \cdot x + 200 \cdot y$, fonction objectif à maximiser

$A : \begin{cases} y = 40 \\ 3x+4y = 200 \end{cases} \Rightarrow 3x + 4 \cdot 40 = 200 \Rightarrow 3x = 200 - 160$

$3x = 40$

$x = 13,3$

$B : \begin{cases} 8x+5y = 400 \\ 3x+4y = 200 \end{cases}$

$$\begin{cases} 32x + 20y = 1600 \\ 15x + 20y = 1000 \end{cases}$$

$$17x = 600$$

$$x = \frac{600}{17}$$

$$20y = 1000 - \frac{15 \cdot 600}{17}$$

$$20y = \frac{17000 - 9000}{17}$$

$$y = \frac{8000}{17 \cdot 20} = \frac{400}{17}$$

$$B(35{,}3;\ 23{,}5)$$

C : $x = 40$

$$8x + 5y = 400$$

$$5y = 400 - 320$$

$$y = \frac{80}{5} = 16$$

$C(40;\ 16)$

Gleich du mex. :

$A(13{,}3;\ 40)$

$$400 \cdot 13{,}3 + 200 \cdot 40 = 4000 + 1200 + 120 + 8000$$

$$= 13320$$

B (35,3; 23,5)

$400 \cdot 35{,}3 + 200 \cdot 23{,}5 = 18\,820$

C (40; 16)

$400 \cdot 40 + 200 \cdot 16 = 16000 + 3200 = 19200$