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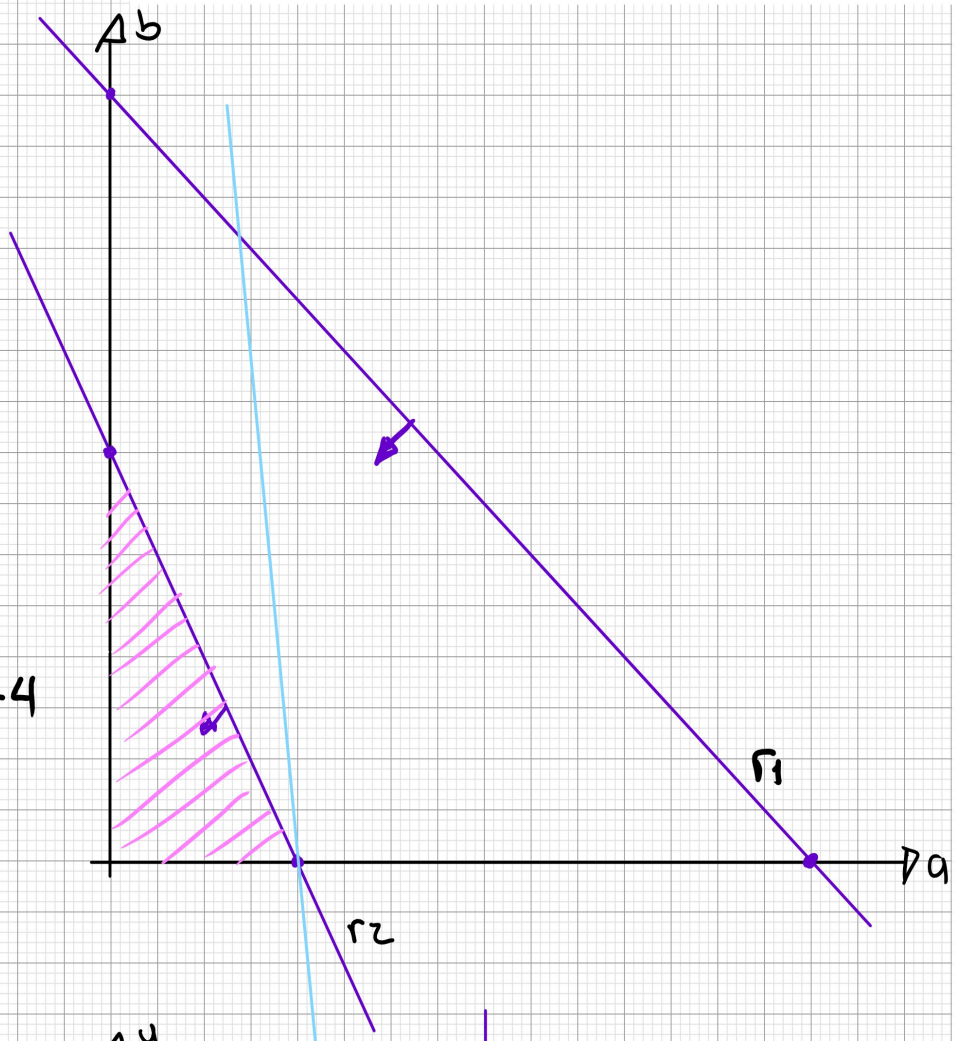
1. $Z = 4a + b$

s.a.

r1: $a + b \leq 150$
r2: $2a + b \leq 80$
r3: $a \geq 0$
r4: $b \geq 0$



r_1 : $a \leq 150$, $b \leq 150$ $\quad r_2$: $a \leq 40$, $b \leq 80$

$z = 4a + b = cte = \emptyset$

$4a + b = 0$, $\quad b = -4a$, $m = -4$

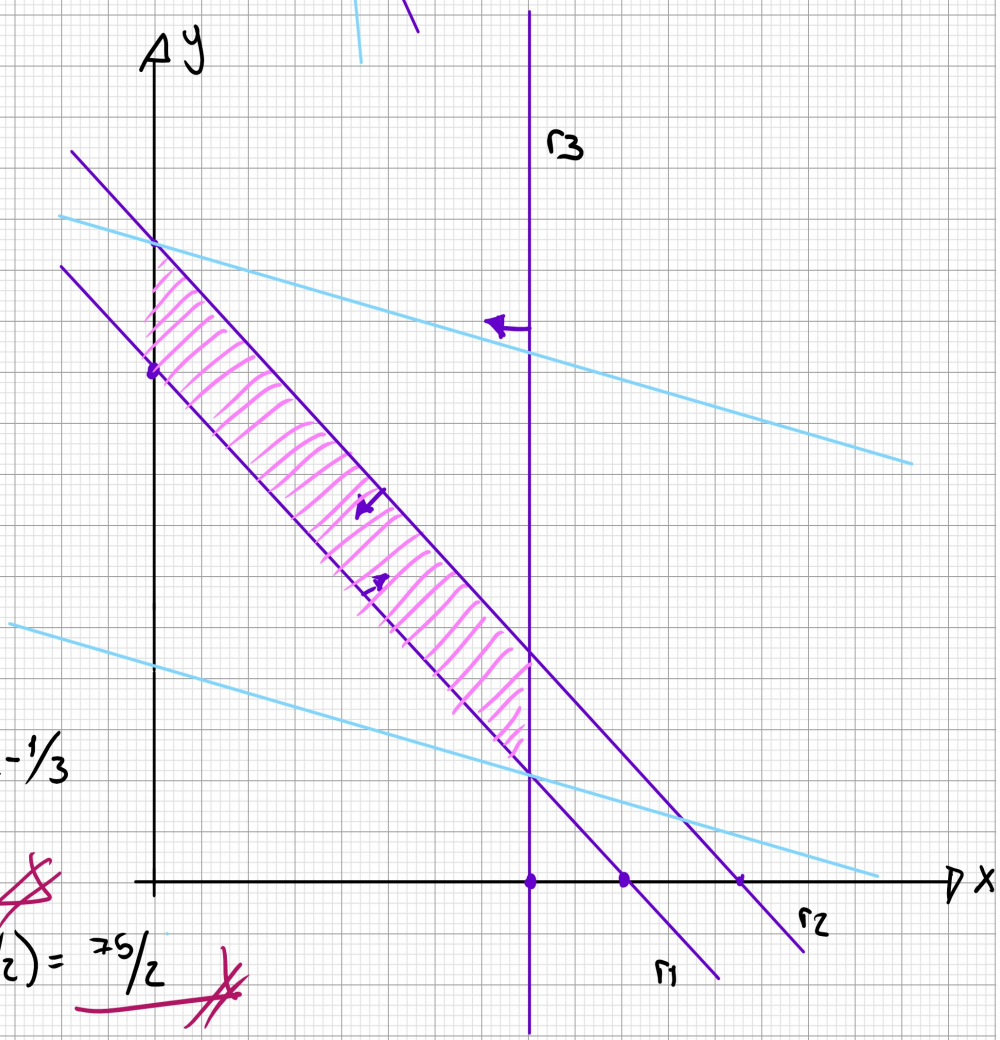
Mínimo $(0,0) = 0$

Máximo $(40,0) = 160$

2. $Z = x + 3y$

s.a.

r1: $x + y \geq 10$
r2: $2x + 2y \leq 25$
r3: $x \leq 8$
r4: $x \geq 0$
r5: $y \geq 0$



r_1 : $x \geq 10$, $y \geq 10$ $\quad r_2$: $x \leq \frac{25}{2}$, $y \leq \frac{25}{2}$

r_3 : $x \leq 8$

$z = x + 3y = cte = \emptyset$

$x + 3y = 0$, $\quad y = -\frac{x}{3}$, $\quad m = -1/3$

Mínimo $(8,2) = 8 + 3(2) = 14$

Máximo $(0, 25/2) = 0 + 3(25/2) = 75/2$

3. $Z = 0.1x + 0.5y$

s.a.

r1: $4x + 3y \leq 30$

r2: $6x + y \leq 36$

r3: $x - y \leq 20$

r4: $x \geq 0$

r5: $y \geq 0$

r1: $x \leq 30/4$ $\quad$ r2: $x \leq 6$

$y \leq 10$ $\quad\quad$ $y \leq 36$

r3: $x \leq 20$

$y \geq -20$

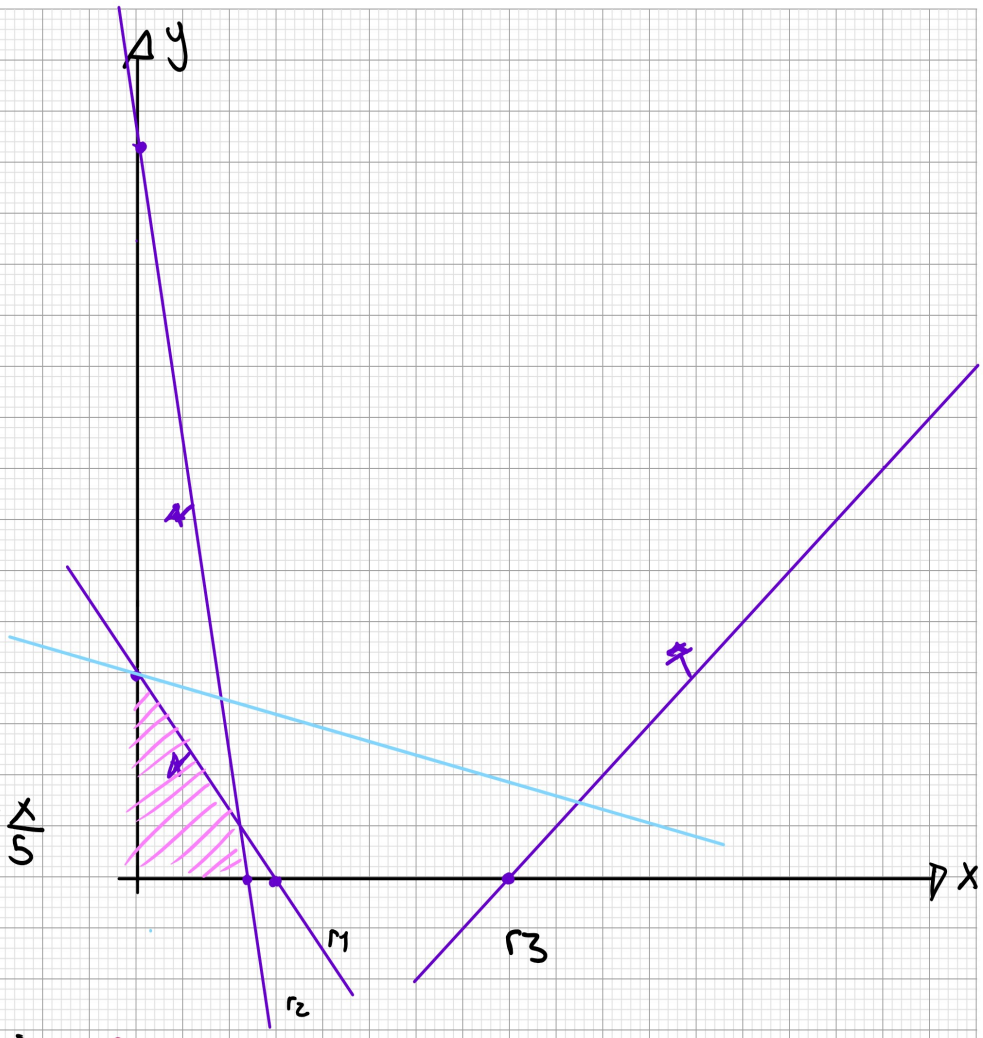
$z = 0.1x + 0.5y = cte = 0$

$0.1x + 0.5y = 0 \quad y = -\frac{1/10}{5/10}x = -\frac{x}{5}$

$m = -1/5$

Mínimo $(0,0) = 0$

Máximo $(0,10) = 0.1(0) + 0.5(10) = 5$



4. $Z = m + 2n$

s.a.

r1: $3m + n \leq 14$

r2: $m + 5n \leq 20$

r3: $m \leq n - 10$

r4: $m \geq 0$

r5: $n \geq 0$

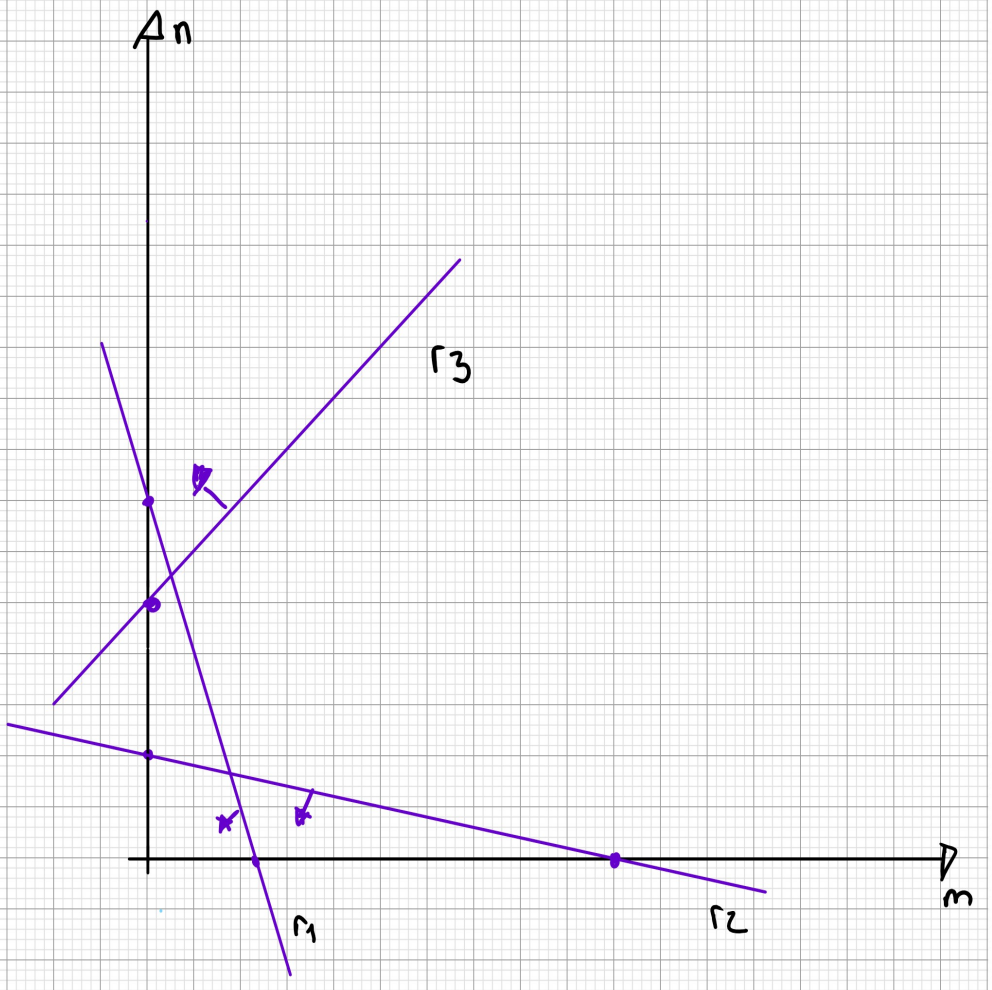
r1: $m \leq 14/3$ $\quad$ r2: $m \leq 20$

$n \leq 14$ $\quad\quad$ $n \leq 4$

r3: $m \leq -10$

$n \geq 10$

No hay Area Convexa



5. $Z = 4x + 3y$

s.a.

r1: $3x + 2y \leq 25$

r2: $x \leq 5$

r3: $8x \leq 21 - 6y$

r4: $x \geq -2$

r5: $y \geq 1$

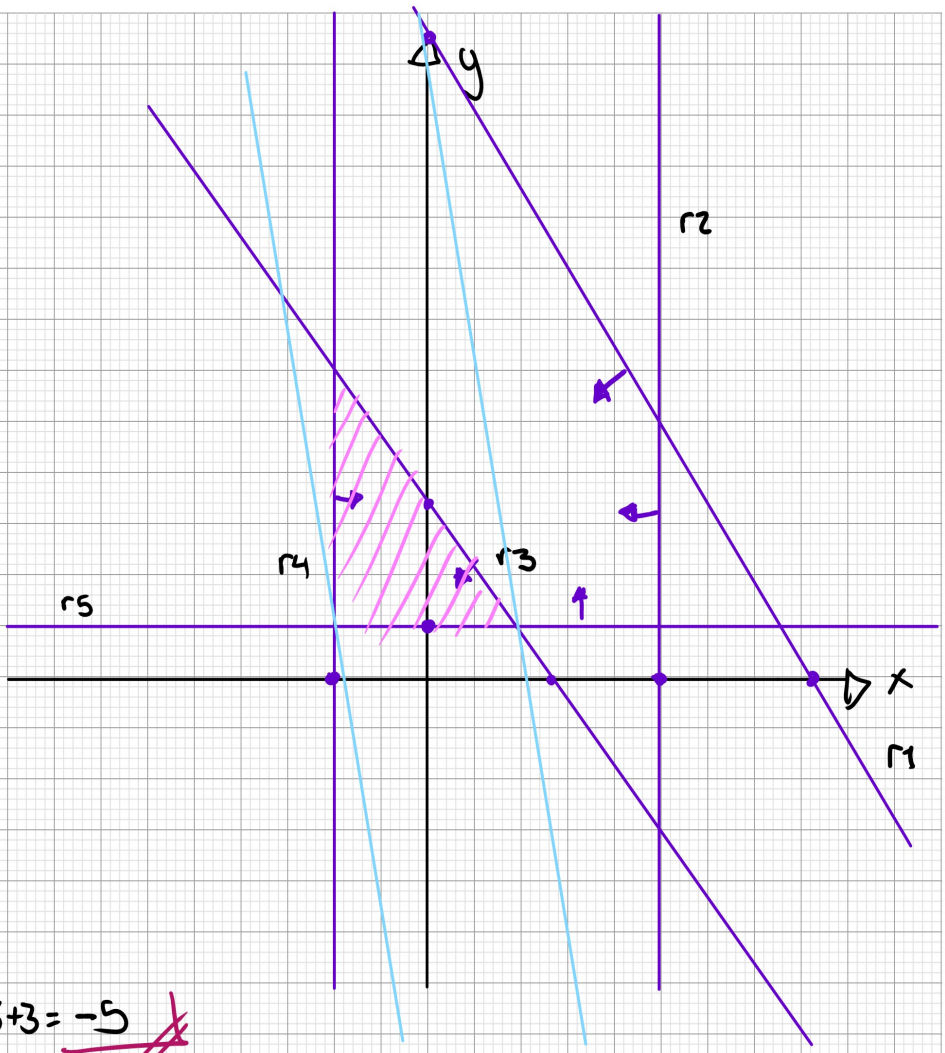
r1: $x \leq 25/3$ $\quad y \leq 25/2$

r2: $x \leq 5$

r3: $x \leq 21/8$ $\quad y \leq 7/2$

r4: $x \geq -2$

r5: $y \geq 1$



$Z = 4x + 3y = cte = 0$

$4x + 3y = 0 \quad y = -\frac{4x}{3}$

$m = -4/3$

Mínimo $(-2, 1) = 4(-2) + 3(1) = -8 + 3 = -5$

Máximo $(15/8, 1) = 4(15/8) + 3(1) = \frac{15}{2} + 3 = 21/2$