① $Z = 4a + b$

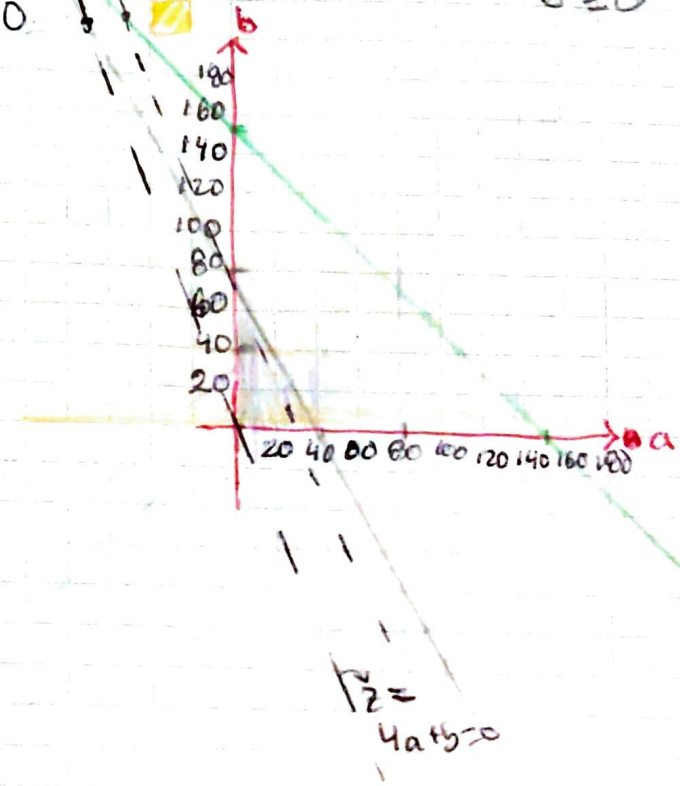
s.a

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

$b = 0$ → $a \leq 150$, $a \leq 40$, $a \geq 0$

$a = 0$ → $b \leq 150$, $b \leq 80$, $b \geq 0$

$Z = 4a + b = 0$
$b = -4a$



$Z_{min}(0,0)$
$Z_{max}(40,80)$

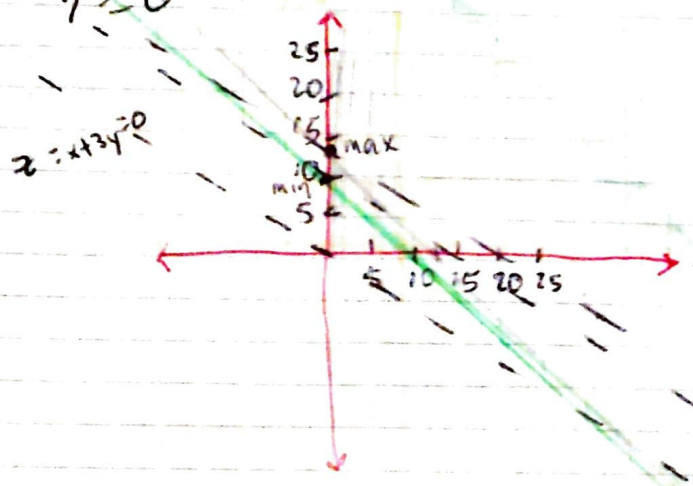
② $Z = x + 3y$

s.a

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

$y = 0$ → $x \geq 10$, $x \leq \frac{25}{2}$, $x \leq 8$, $x \geq 0$

$x = 0$ → $y \geq 10$, $y \leq \frac{25}{2}$, $y \geq 0$



$Z = x + 3y = 0$

$y = -\frac{x}{3}$

PRIMER CONTACTO Z CON LA ZONA FACTIBLE MÍNIMO ES: $(0,10)$

ÚLTIMO PUNTO CONTACTO MÁXIMO $MAX = (0, \frac{25}{2})$

$\therefore Z = 0 + 3(\frac{25}{2})$
$= 37.5$

③ $z = 0.1x + 0.5y$

s.a.

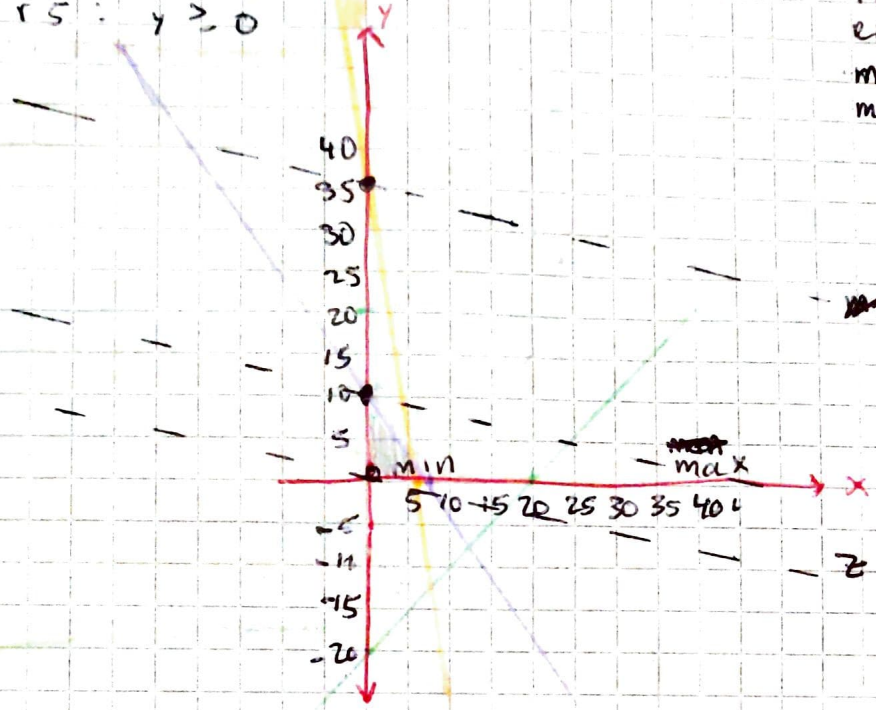
r1: $4x + 3y \leq 30$ — $y = 0$: $x \leq \frac{30}{4}$ (7.5) — $x = 0$: $y \leq \frac{30}{3}$ (10)

r2: $6x + y \leq 36$ — $x \leq \frac{36}{6}$ (6) — $y \leq 36$

r3: $x - y \leq 20$ — $x \geq 20$ — $y \geq 20$

r4: $x \geq 0$ — $x \geq 0$ — $y \geq 0$

r5: $y \geq 0$



PUNTOS CON LA REGIÓN FACTIBLE

min (0,0)

max (0,10)

$z = 0.1x + 0.5y = 0$

④ $z = m + 2n$

s.a.

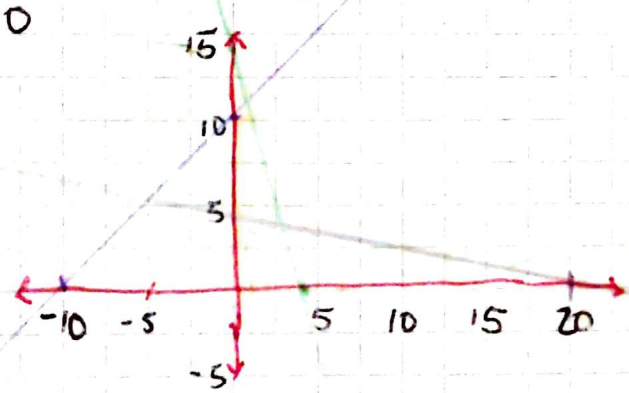
r1: $3m + n \leq 14$ — $m = 0$: $m \leq \frac{14}{3}$ (4.6) — $n = 0$: $n \leq 14$

r2: $m + 5n \leq 20$ — $m \leq 20$ — $n \leq \frac{20}{5}$ (4)

r3: $m \leq n - 10$ — $m \leq -10$ — $n \geq 10$

r4: $m \geq 0$ — $m \geq 0$ — $n \geq 0$

r5: $n \geq 0$



LA REGIÓN FACTIBL ESTÁ VACÍA

LAS RESTRICCIONES NO SE SOBREPONEN

NO HAY PUNTOS MIN, M

$z = 4x + 3y$

5.a

r1: $3x + 2y \leq 25$ $\quad y=0 \Rightarrow x \leq \frac{25}{3}$ 8.5 $\quad x=0 \Rightarrow y \leq \frac{25}{2}$ 12.5

r2: $x \leq 5$

r3: $8x \leq 21 - 6y$ $\quad x \leq \frac{21}{8}$ 2.6 $\quad y \leq \frac{21}{6}$ 3.5

r4: $x \geq -2$

r5: $y \geq 1$

$\min(-2, 1)$

$\max\left(\frac{21}{8}, \frac{21}{6}\right)$