

$$C(x; y) = x^2 + 2xy + y^2$$

$$x = 3600 - 5p_1$$

$$y = 1500 - 2p_2$$

$$x + y = 240$$

$$x \geq 0$$

$$y \geq 0$$

$$5p_1 = -x + 3600 \Rightarrow p_1 = -\frac{1}{5}x + 720$$

$$2p_2 = -y + 1500 \Rightarrow p_2 = -\frac{1}{2}y + 750$$

$$R(x; y) = p_1 \cdot x + p_2 \cdot y$$

$$R(x; y) = -\frac{1}{5}x^2 + 720x - \frac{1}{2}y^2 + 750y$$

$$C(x; y) = x^2 + 2xy + y^2$$

$$U(x; y) = -\frac{6}{5}x^2 - \frac{3}{2}y^2 - 2xy + 720x + 750y$$

Utile senza vincoli
(in funzione di x e y)

$$y = -x + 240$$

$$y \geq 0 \Rightarrow -x + 240 \geq 0 \Rightarrow x \leq 240$$

$$U = -\frac{6}{5}x^2 - \frac{3}{2}(240-x)^2 - 2x(240-x) + 720x + 750(240-x)$$

$$U = -\frac{6}{5}x^2 - \frac{3}{2}(57600 + x^2 - 480x) - 480x + 2x^2 + 720x + 180000 - 750x$$

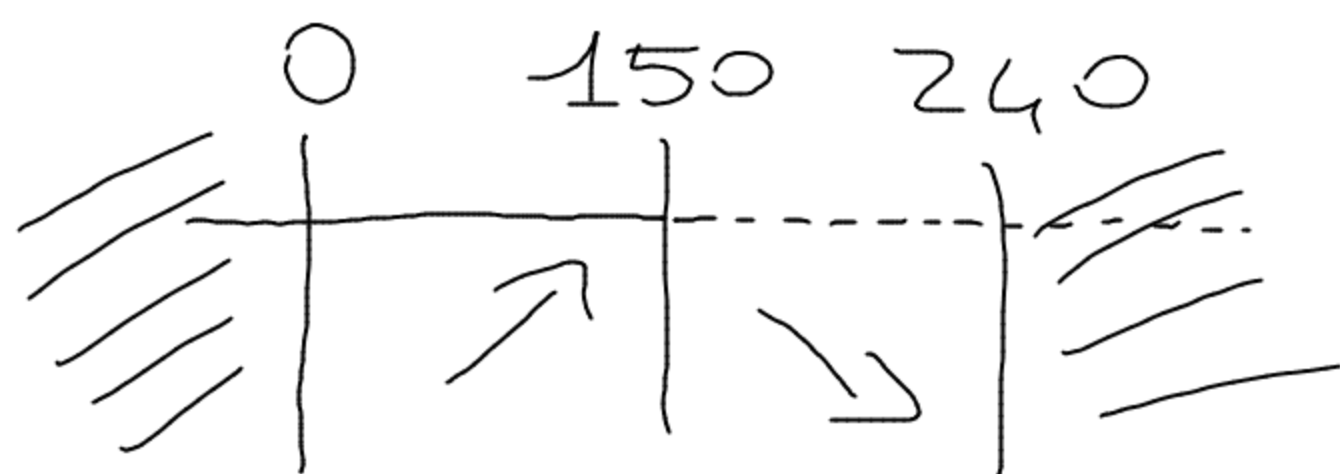
$$U = -\frac{6}{5}x^2 - 86400 - \frac{3}{2}x^2 + 720x - 450x + 2x^2 + 180000$$

$$U = -\frac{7}{10}x^2 + 210x + 93600$$

$$0 \leq x \leq 240$$

utile con il vincolo $x + y = 240$
(in funzione solo di x)

$$U' = -\frac{7}{5}x + 210$$



il massimo
utile si ottiene
per $x = 150$
 $y = 90$
ed è 109350€