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$$u = \sqrt{x_1} \cdot \sqrt{x_2}$$

$p_1 = 4$

$p_2 = 8$

$B = 1.000\ €$

$$B = m = p_1 \cdot x_1 + p_2 x_2$$

$$1000 = 4 x_1 + 8 x_n$$

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$$\frac{\frac{\partial u}{\partial x_1}}{\frac{\partial u}{\partial x_2}} = \frac{p_1}{p_2} \quad \Leftrightarrow \quad \frac{\frac{1}{2} \cdot x_1^{-\frac{1}{2}} \cdot x_2^{\frac{1}{2}}}{\frac{1}{2} \cdot x_1^{0,5} \cdot x_2^{-0,5}} = \frac{4}{8}$$

$$\Leftrightarrow \quad x_1^{-\frac{1}{2}-\frac{1}{2}} \cdot x_2^{\frac{1}{2}-(-\frac{1}{2})} = \frac{1}{2}$$

$$\Leftrightarrow \quad x_1^{-1} \cdot x_2^{1} = \frac{1}{2} \quad \Leftrightarrow \quad x_2 = \frac{1}{2} \cdot x_1$$

$$\Leftrightarrow \quad \boxed{x_1 = 2x_2}$$

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$$\Leftrightarrow \quad 1000 = 4x_1 + 8x_2 = 4 \cdot (2x_2) + 8x_2 = 16x_2$$

$$\Leftrightarrow \quad \boxed{x_2^* = 625} \qquad x_1 = 2 \cdot 625 = \boxed{125 = x_1^*}$$

h)

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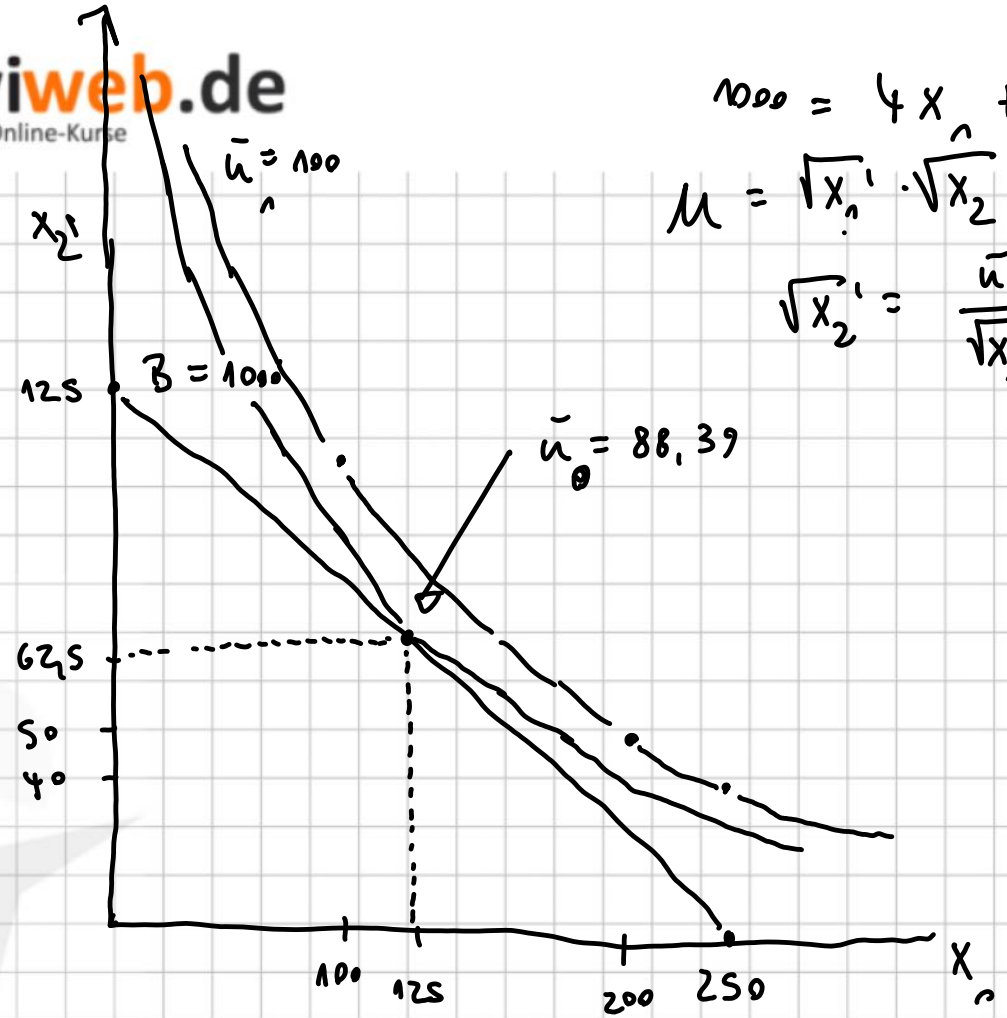
1)

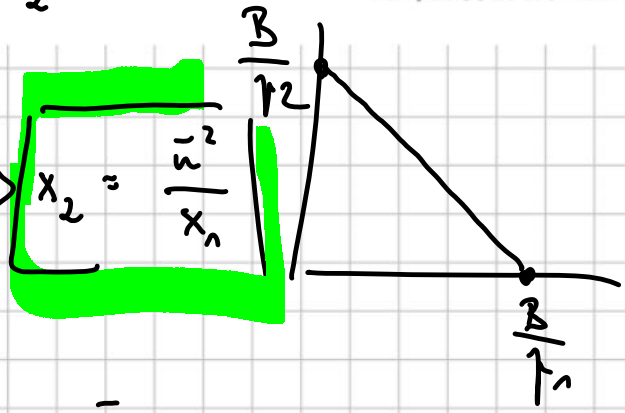
b)



$1000 = 4x_1 + 8x_2$

$u = \sqrt{x_1} \cdot \sqrt{x_2}$

$\sqrt{x_2} = \frac{\bar{u}}{\sqrt{x_1}} \Rightarrow x_2 = \frac{\bar{u}^2}{x_1}$



$\bar{u} = 100$

$\Rightarrow x_2 = \frac{100^2}{x_1}$ ... $\bar{u} = 100$

x_1	100	200	250
x_2	100	50	40

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2)

$$p = 12 - 6x \iff p - 12 = -6x$$

$$\iff x = \frac{p-12}{-6}$$

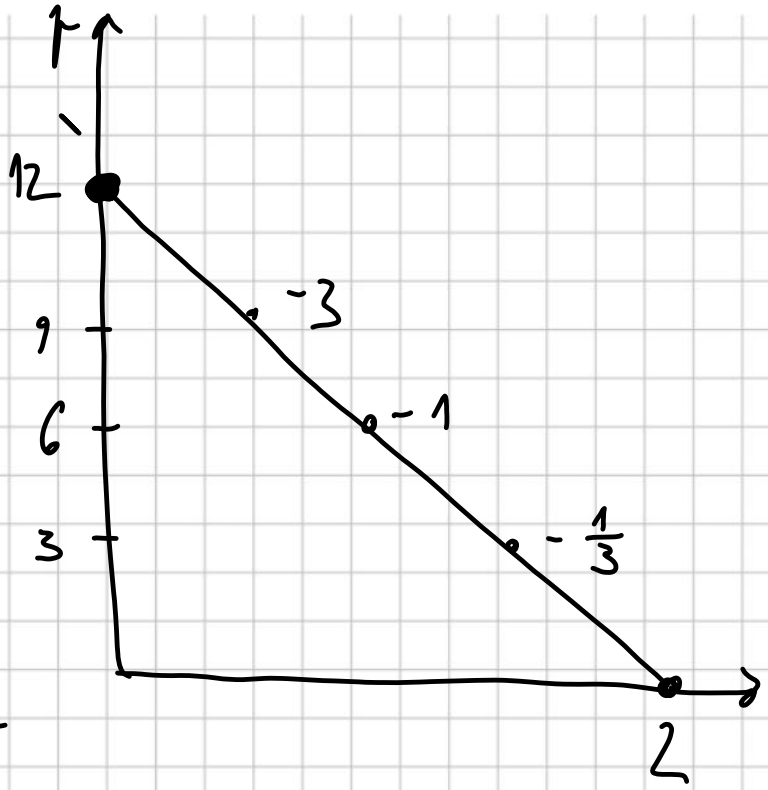
$$\boxed{x = 2 - \frac{1}{6}p}$$

$$\varepsilon = \frac{dx}{dp} \cdot \frac{p}{x}$$

$$= -\frac{1}{6} \cdot \frac{p}{2 - \frac{1}{6} \cdot p}$$

$$= -\frac{1}{6} \cdot \frac{p}{\frac{p-12}{-6}} = -\frac{1}{6} \cdot \frac{-6}{p-12} \cdot p$$

$$= +\frac{p}{p-12}$$



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4)

$p = 8 - 2x$

$k = 4x + 1$

$G_E = G_K$

$\left(\underbrace{(8-2x)}_{p} \cdot x \right)' = 4$

$\Leftrightarrow (8x - 2x^2)' = 4$

$\Leftrightarrow 8 - 4x = 4$

$\Leftrightarrow 8 - 4 = 4x$

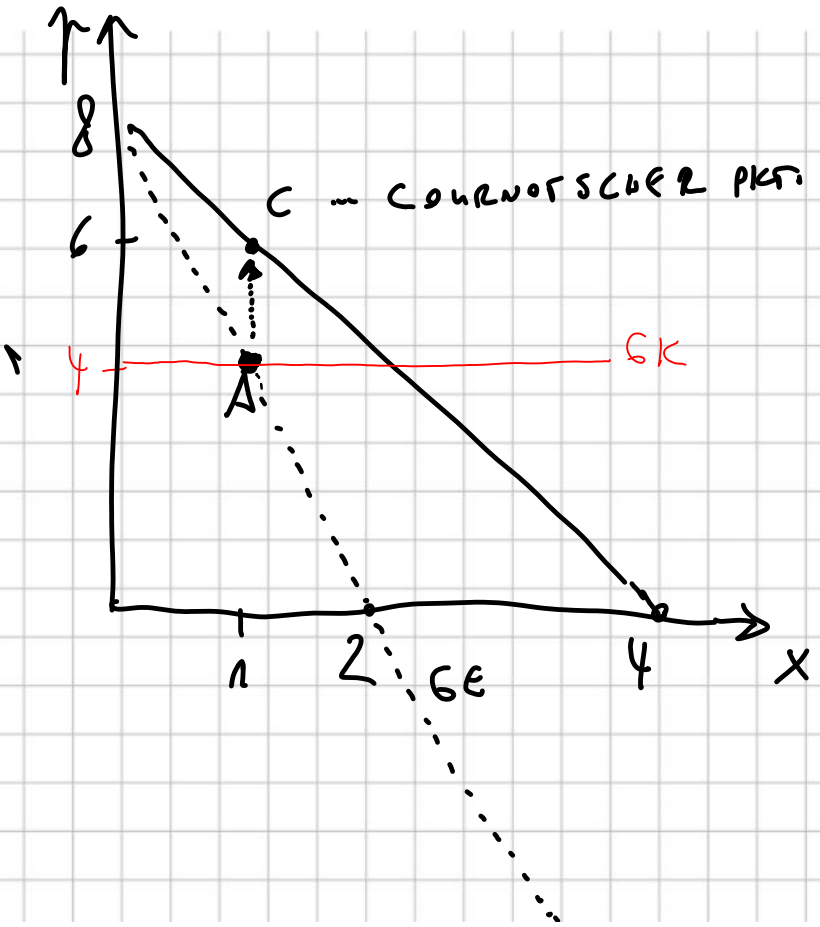
$\Leftrightarrow \boxed{x = 1} \quad \boxed{p = 6}$

$G^{min} = E - K$

$= p \cdot x - (4x + 1)$

$= 6 \cdot 1 - (4 \cdot 1 + 1)$

$= 6 - 5 = \underline{\underline{1}}$



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3 ↑ p_1 ↑

→ (B_0 & B_1)

→ PARALLELVERSCHOBEN VON B_1 DURCH ALTES OPT. A .. B_{0_1}