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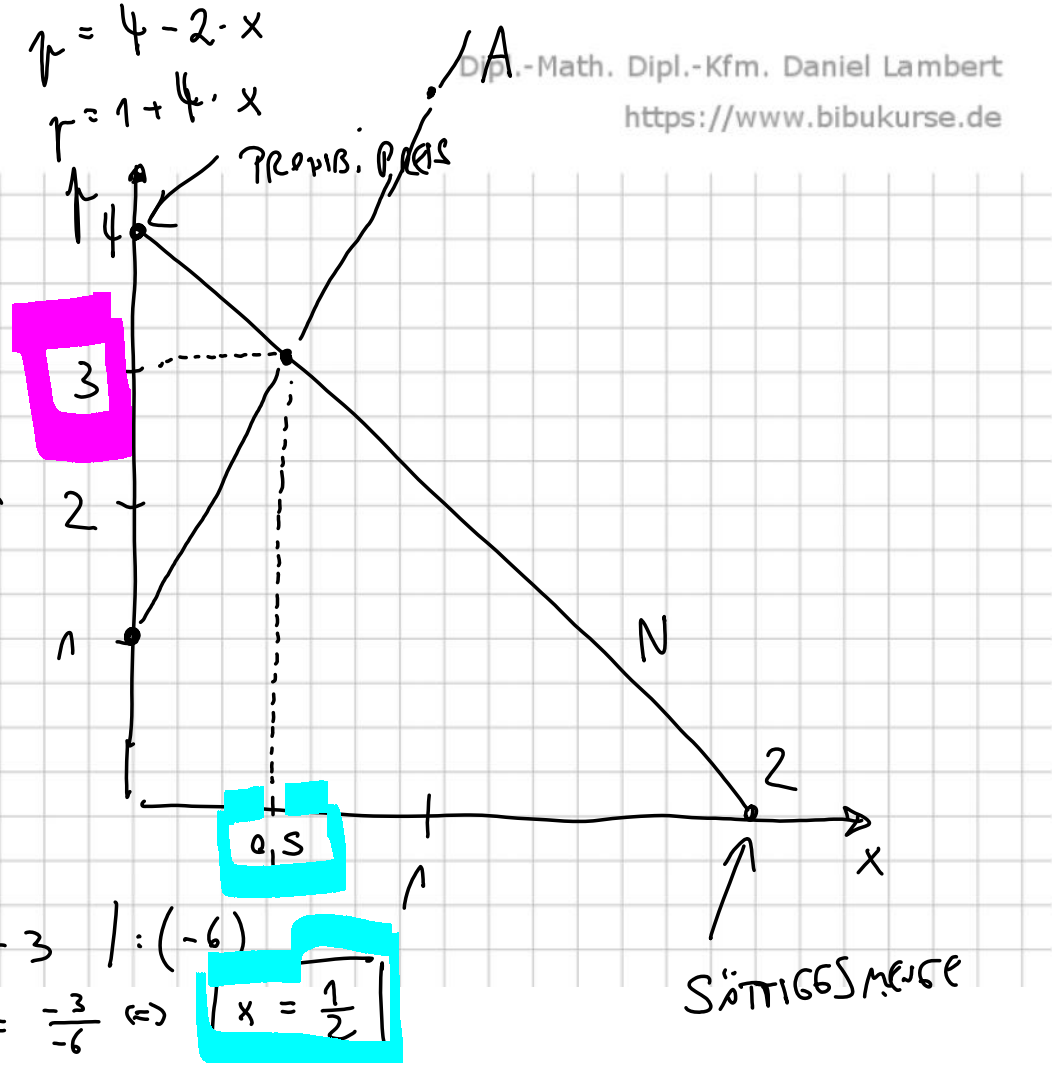
1] a)

N: $y = 4 - 2 \cdot x$

A: $y = 1 + 4 \cdot x$



b) $4 - 2 \cdot x = 1 + 4 \cdot x \quad | -4 \cdot x$

$\Leftrightarrow 4 - 2x - 4x = 1 + \underbrace{4x - 4x}_{0}$

$\Leftrightarrow 4 - 6x = 1 \quad | -4$

$\Leftrightarrow 4 - 6x - 4 = 1 - 4$

$\Leftrightarrow \underbrace{4 - 4}_{0} - 6x = -3 \quad \Leftrightarrow -6x = -3 \quad | : (-6)$

$\Leftrightarrow \frac{-6x}{-6} = \frac{-3}{-6} \Leftrightarrow \boxed{x = \frac{1}{2}}$

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$f = 4 - 2 \cdot x = 4 - 2 \cdot \frac{1}{2} = 4 - 1 = 3$

$f = 1 + 4 \cdot x = 1 + 4 \cdot \frac{1}{2} = 1 + 2 = 3$

$f^* = 3$

2 | a)

$\text{EIGENW.} < 0 \Rightarrow$ ENTGEGENGER. ZSHG

$-4- > 0 \Rightarrow$ GLEICHGER. ZSHG

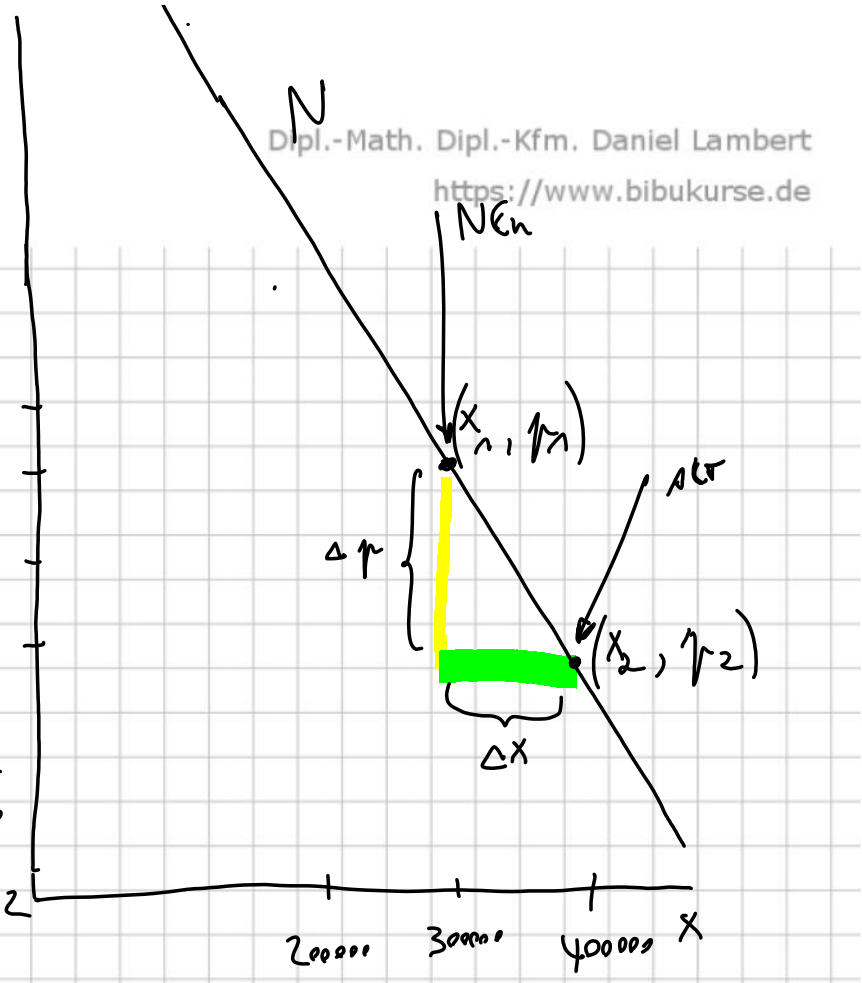
	p	x
ACT	300	400 000
NEU	500	300 000

$$p = a + b \cdot x$$

$$b = \frac{\Delta p}{\Delta x} = \frac{p_1 - p_2}{x_2 - x_1} = \frac{500 - 300}{400000 - 300000} = \frac{200}{100000} = 0{,}002$$

Besser gesagt:

$$b = -0{,}002$$



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$$a = p_1 - k \cdot x_1 = 500 - (-0{,}002) \cdot 300.000 = 500 + \frac{300.000 \cdot 2}{1000}$$

$$= 500 + 600 = 1100$$

$$a = p_2 - k \cdot x_2 = 300 - (-0{,}002) \cdot 400.000 = 300 + \frac{400.000 \cdot 2}{1000}$$

$$= 1.100$$

c)

$$\text{PREIS ELAST.} = \frac{\text{REL. MENGENÄNDERG}}{\text{REL. PREIS -"-}} = \frac{\frac{x_{neu} - x_{alt}}{x_{alt}}}{\frac{p_{neu} - p_{alt}}{p_{alt}}}$$

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$$\frac{300\,000 - 400\,000}{400\,000}$$

$$= \frac{-25\,\%}{\frac{500 - 300}{300}} = \frac{-25\,\%}{66{,}67\,\%}$$

$$\frac{\frac{1}{4}}{\frac{2}{3}} = \frac{1}{4} \cdot \frac{3}{2} = \frac{3}{8} = 0{,}375$$

$= 37{,}5\,\%$

--- $p \uparrow$ um z.B. $10\,\% \rightarrow x^N \downarrow$ um $37{,}5\,\%$

3) b) $\eta = -3$, $p \uparrow$ um $4\,\% \rightarrow x^N \downarrow$ um $12\,\%$

c) $\eta = -5$, $p \downarrow$ um $3\,\% \rightarrow x^N \uparrow$ um $15\,\%$

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$$3 - 4x = 5 + 10x \quad | -10x$$

$$\Leftrightarrow \quad 3 - 4x - 10 = 5 + \underbrace{10x - 10x}_{0} \quad | -3$$

$$\Leftrightarrow \quad 3 - 14x = 5$$

$$\Leftrightarrow \quad 3 - 14x - 13 = 5 - 3$$

$$\Leftrightarrow \quad \underbrace{3 - 3}_{0} - 14x = 2$$

$$\Leftrightarrow \quad -14x = 2 \quad \Leftrightarrow \quad x = -\frac{2}{14} \quad \Leftrightarrow \quad \boxed{x = -\frac{1}{7}}$$

PROBE

$$3 - 4 \cdot \left(-\frac{1}{7}\right) \overset{?}{=} 5 + 10 \cdot \left(-\frac{1}{7}\right)$$

$$\Leftrightarrow \quad 3 + \frac{4}{7} \overset{?}{=} 5 - \frac{10}{7}$$

$$\Leftrightarrow \quad \frac{21+4}{7} \overset{?}{=} \frac{35-10}{7}$$

$$\Leftrightarrow \quad \frac{25}{7} \overset{?}{=} \frac{25}{7}$$