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Метод неправильного деления (для плав. дроб. вр.)

$$f(x) = 0 \rightsquigarrow x = g(x)$$

$x_{n+1} = g(x_n)$; x_0 - нач. пред.

$$f(x) = e^x - 2 - x = 0 \quad \text{найдем } x = g(x)$$

$$x = e^{-x} - 2 \quad x_0 =$$

$$f(0) = -1$$

$$f(1) = e - 3$$

$$f(2) = e^2 - 4 > 0$$

$$f(-1) = \frac{1}{e} - 1 < 0$$

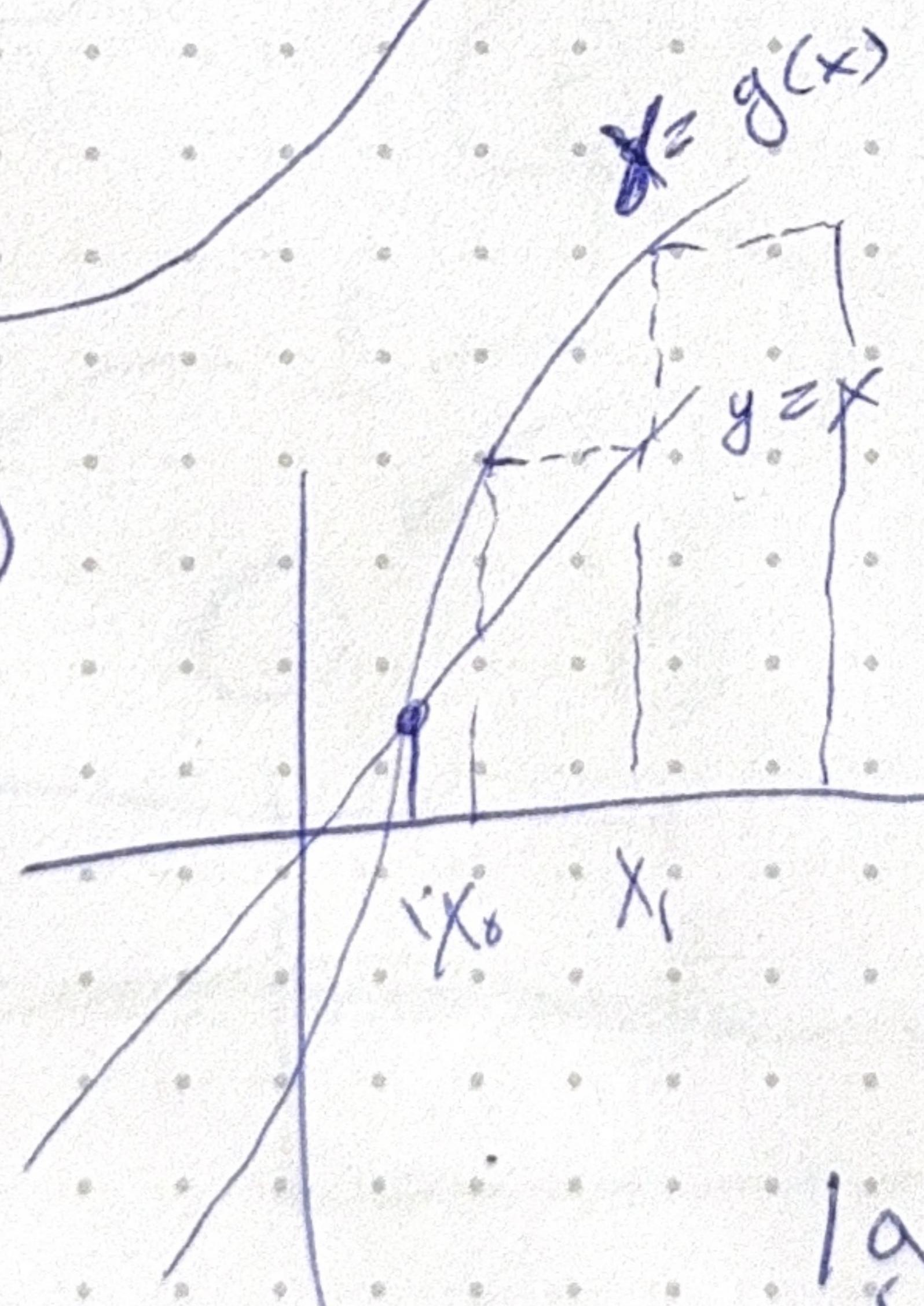
$$f(-2) = \frac{1}{e^2}$$

$$g(x)$$

$$x_1 = g(x_0)$$

алг
смк

①



$$|g'(x)| < l \Leftrightarrow$$

$$\Rightarrow cxog$$

TINKOFF

Коли тозың нәрсөн көрсетб, ендиң пакшоғ

$$g(g^{-1}(x)) = x$$

$$g'(g^{-1}(x))(g^{-1})'(x) = 1 \Rightarrow (g^{-1})'(x) = \frac{1}{g'(g^{-1}(x))}$$

негизгілүү $\tilde{x} = g^{-1}(\tilde{y})$

$$(g^{-1})'(\tilde{x}) = \frac{1}{g'(g^{-1}(\tilde{x}))} = \frac{1}{g'(\tilde{x})} \Rightarrow$$

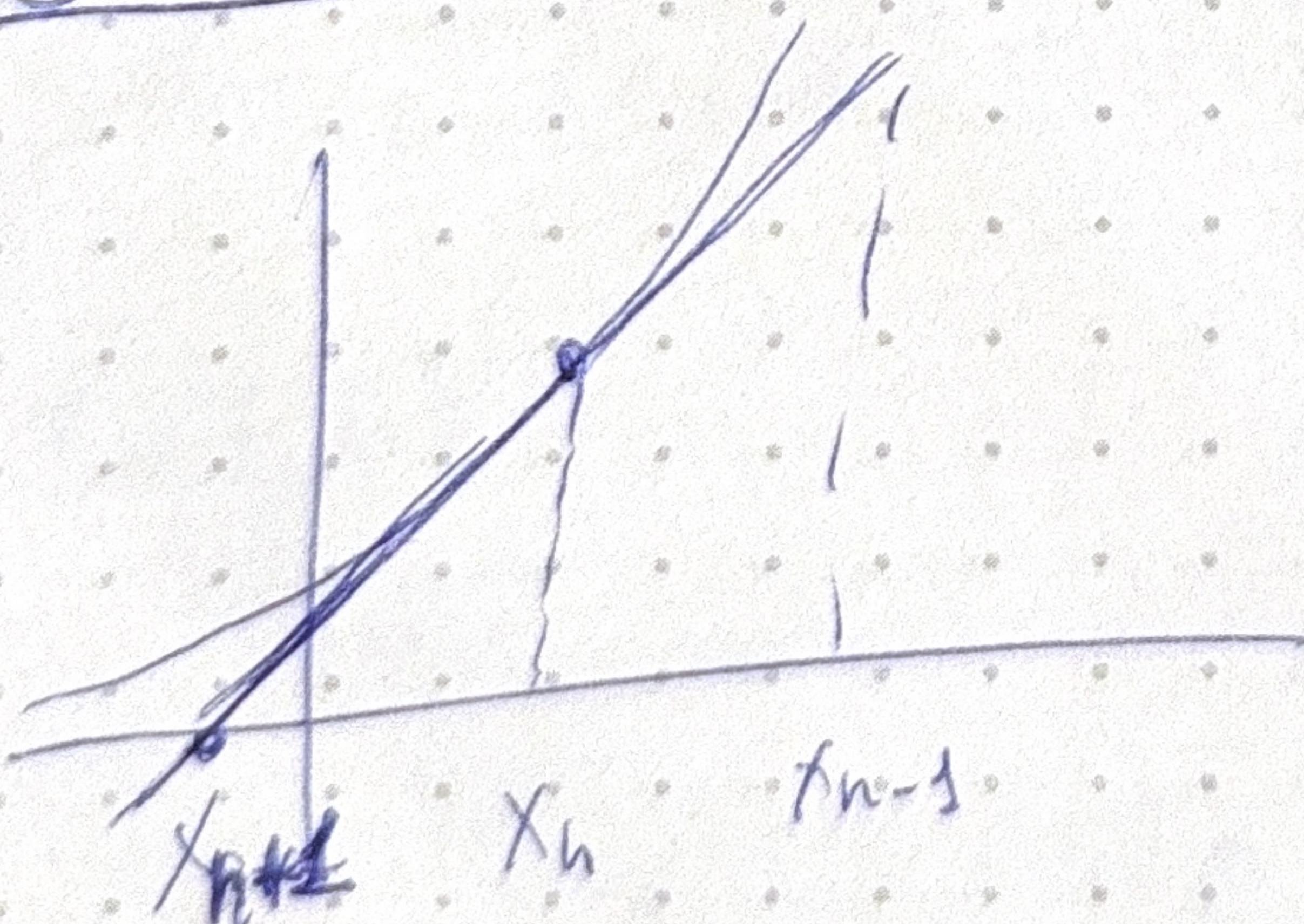
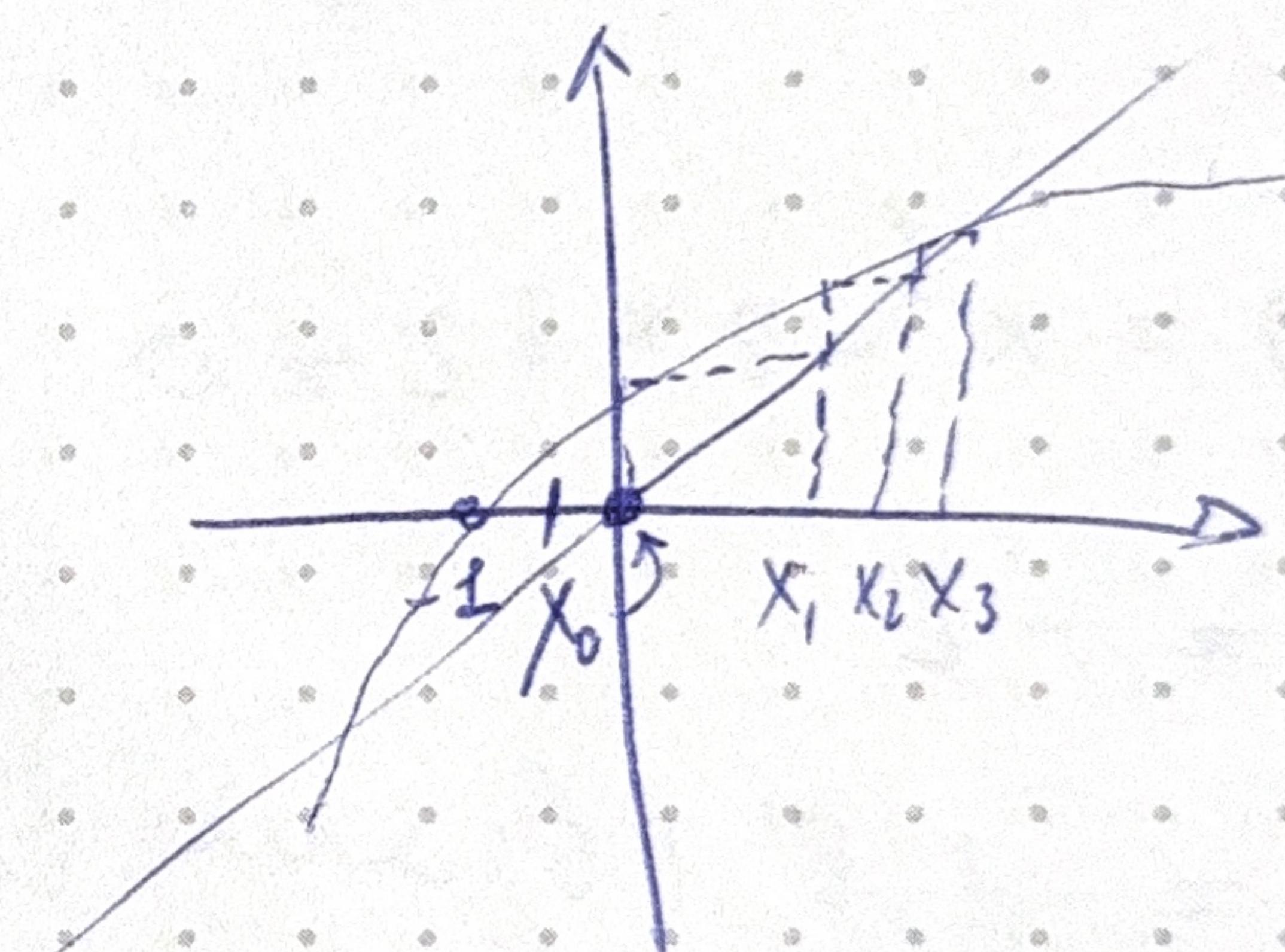
$$\Rightarrow \text{есди } |g'(\tilde{x})| > 1, \text{ сондай } |(g^{-1})'(\tilde{x})| < 1$$

$$g(x) = e^x - 2$$

$$g^{-1}(x) = \ln(x+2)$$

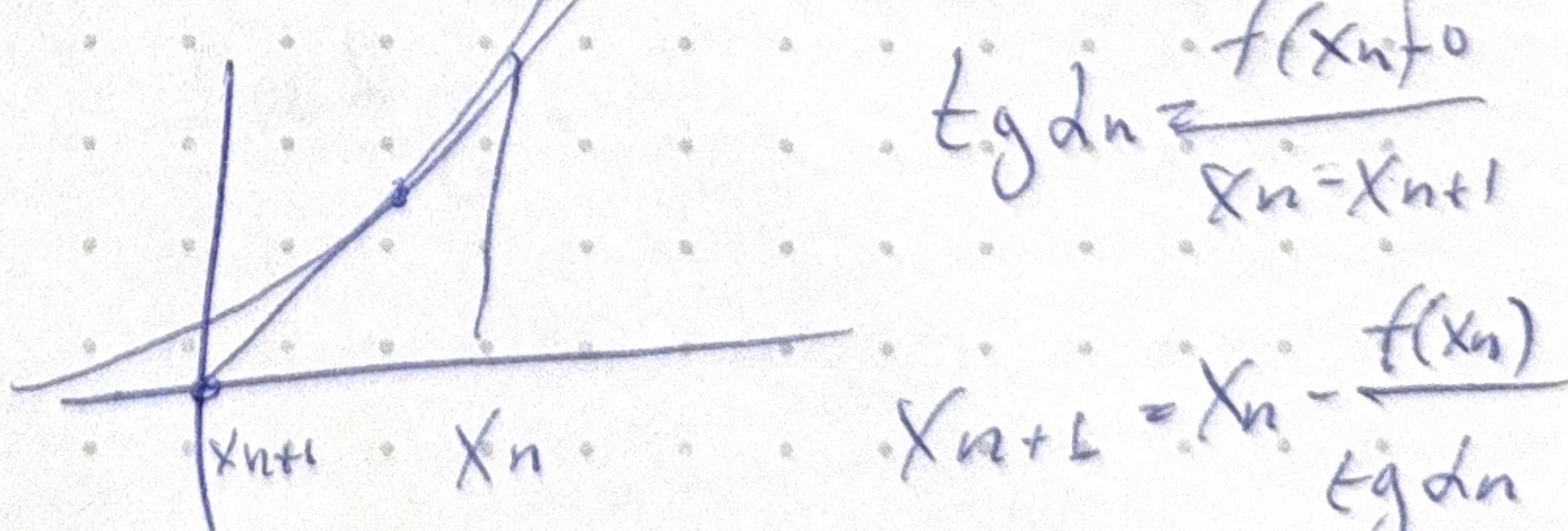
$$x = \ln(x+2)$$

$$g'(x) = e^x$$



Моңаң Математика
 $f(x)$

$$\operatorname{tg} dn = \frac{f(x_{n+1})}{x_n - x_{n+1}}$$



$$\operatorname{tg} dn = f'(x_n)$$

М. ойнод көсөт.

$$\operatorname{tg} dn = f'(x_n)$$

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Мер сенүүгүү

$$\operatorname{tg} dn = \frac{f(x_n) - f(x_{n-1})}{x_n - x_{n-1}}$$

$$f(x) = x^3 - 2x + 2 = 0$$

$$x_0 = 0$$

$$x_0 = -2$$

$$\text{tg}\Delta n = \frac{3x^2 - 2}{x_0} = \frac{3(-2)^2 - 2}{0} = -2$$

$$f_{\text{tg}} \Delta n = 12 - 2 = 10$$

$$x_1 = x_0 - \frac{2}{-2} = 1$$

$$x_1 = -2 - \frac{-8+4+2}{10} =$$

$$x_2 = 1 - \frac{1}{-2} = \frac{3}{2}$$

$$z = -20 + 2 = -\frac{18}{10}$$

$$x_2 = -\frac{18}{10} - \frac{\left(\frac{18}{10}\right)^3 - 2\left(-\frac{18}{10}\right) + 2}{10} =$$

počítaj

$$z = -1,7768$$

$$f(x) = x^3 - 2x + 2 = 0$$

$$x_0 = -2$$

$$x_1 = -1,8 \quad (\text{řešení je dvojrozdílné})$$

$$\text{tg} \Delta n = \frac{f(x_n) - f(x_{n-1})}{x_n - x_{n-1}} =$$

$$x_2 = x_1 - \frac{f(x_1)}{\text{tg} \Delta n}$$