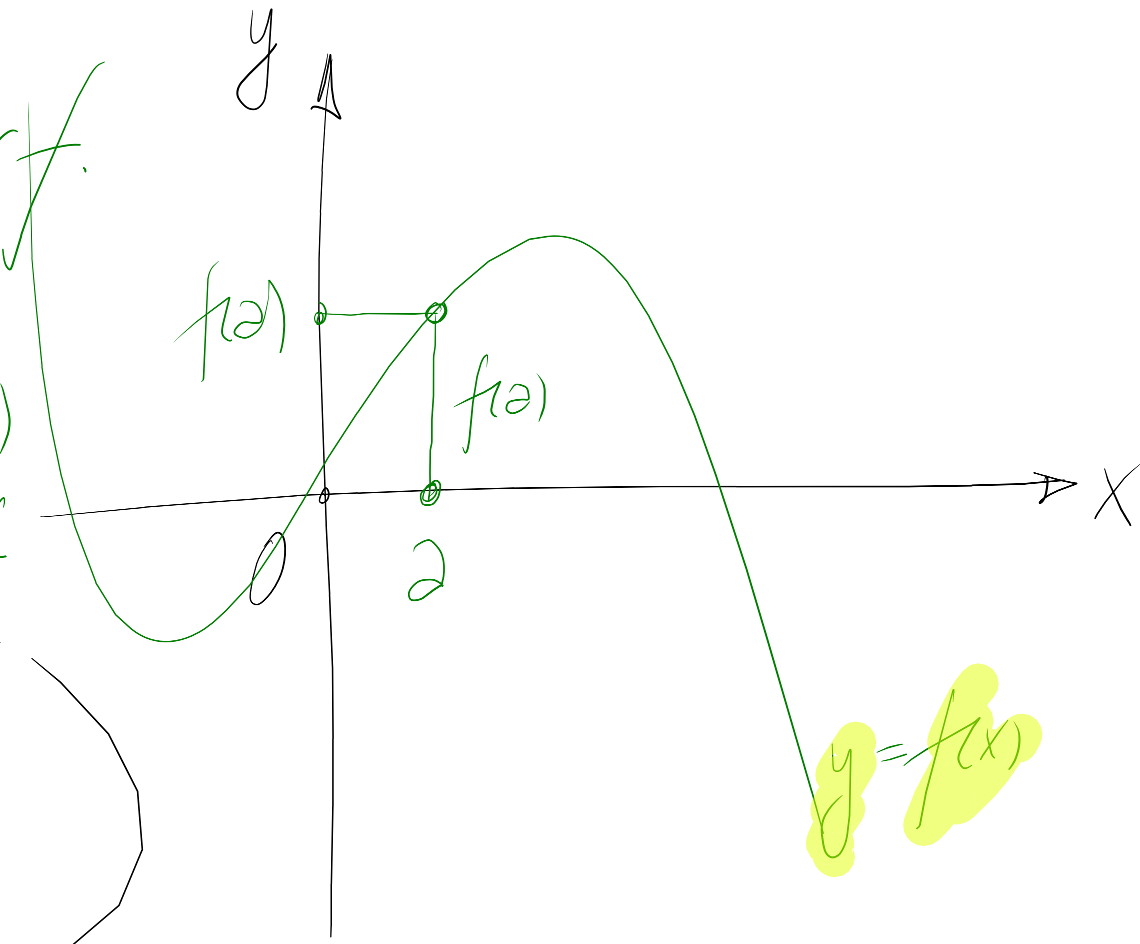
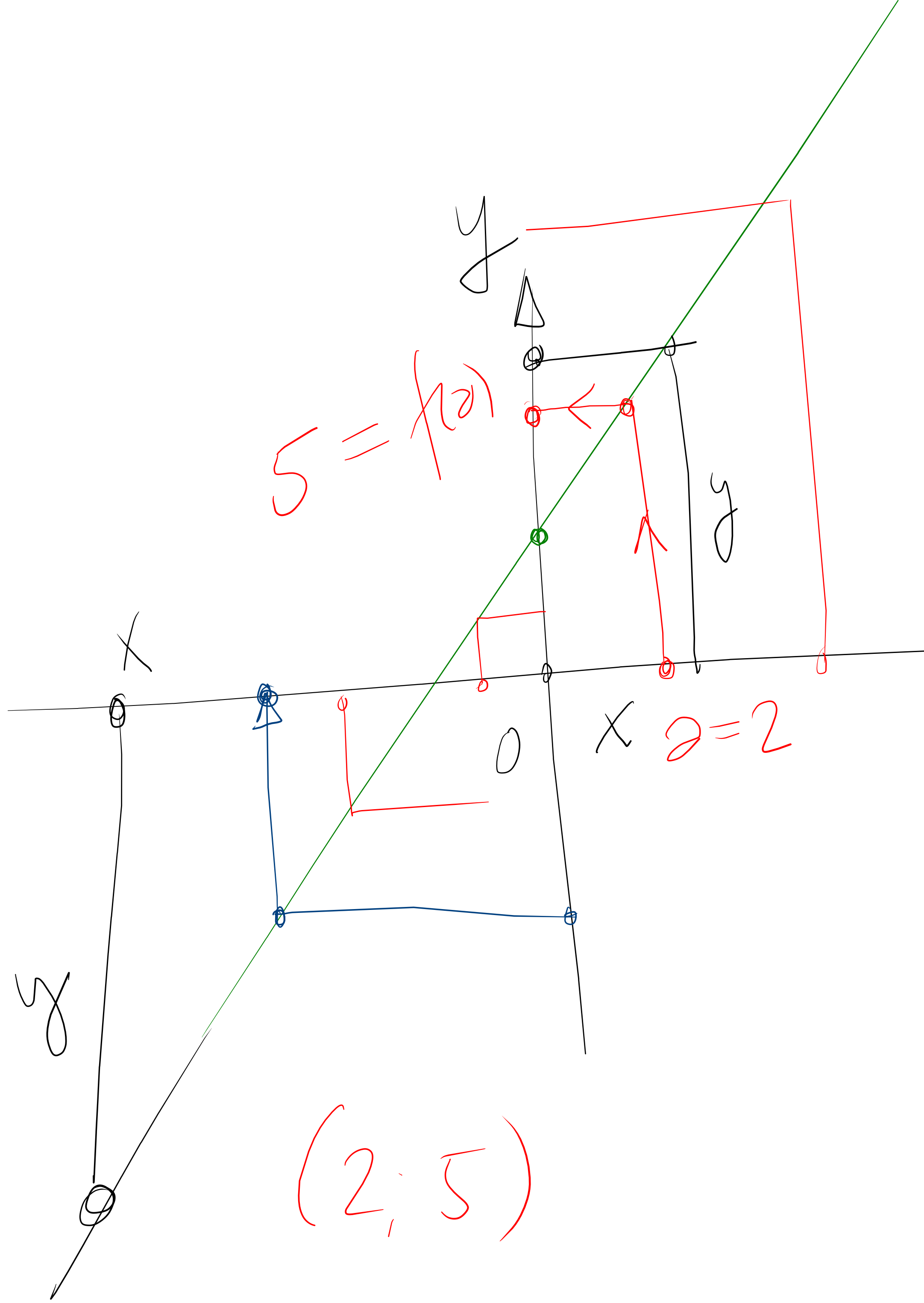
$f(a)$ est l'IMAGE de a par f.

a est un ANTÉCÉDANT de $f(a)$ par f
une PRÉIMAGE



Fonction

Cas particulier : la BIJECTION



$$y = \frac{3}{2}x + 2$$

$$f(x) = \frac{3}{2}x + 2$$

f est bijecti

$$\boxed{y = \frac{3}{2}x + 2}$$

$$y - 2 = \frac{3}{2}x$$

$$\cdot 2$$

$$2y - 4 = 3x$$

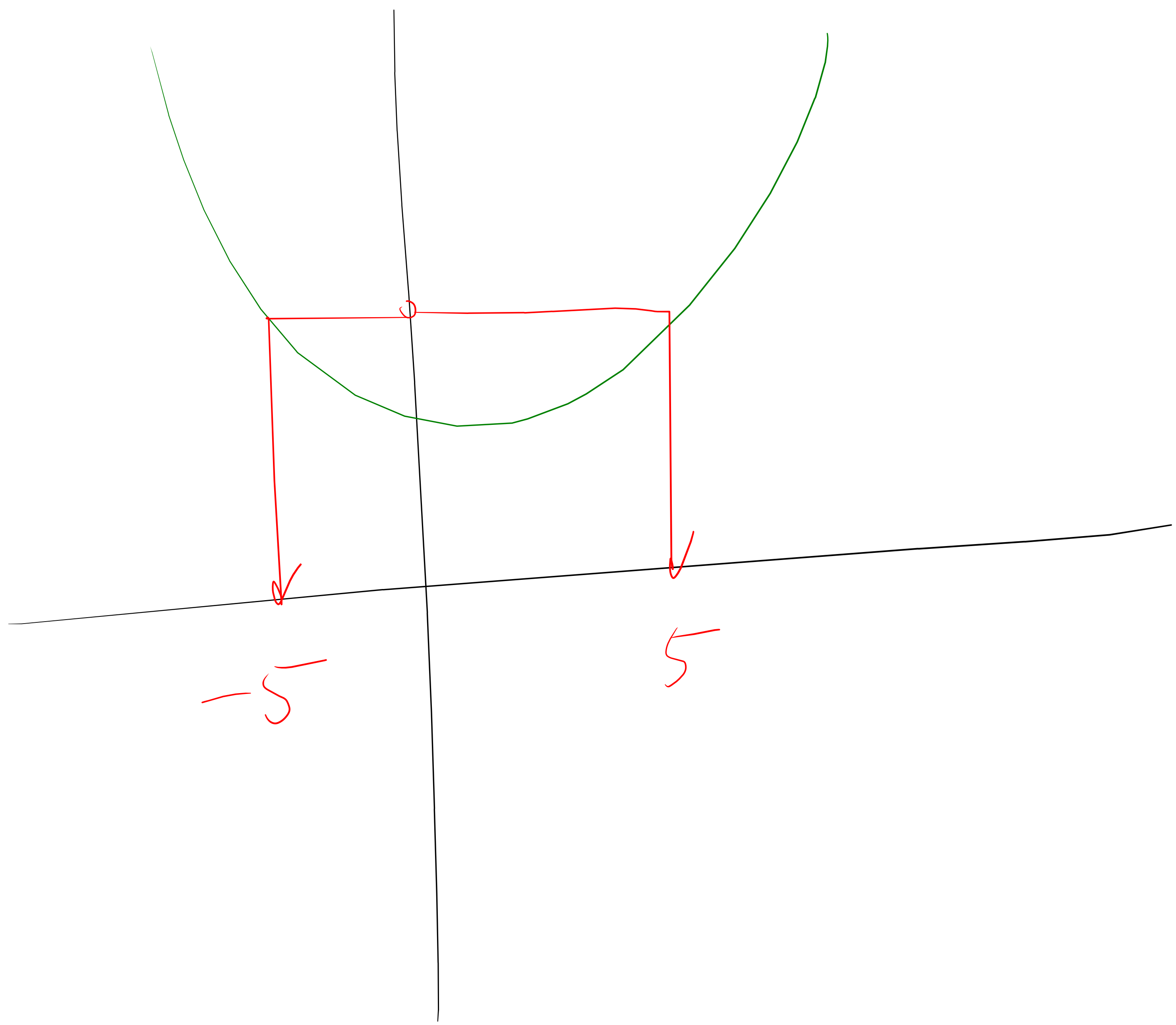
$$: 3$$

$$\frac{2}{3}y - \frac{4}{3} = x$$

$$\boxed{x = \frac{2}{3}y - \frac{4}{3}}$$

réciproque

$$x = f^{r}(y)$$



0
-5
5

$y = x^2$

$\sqrt{\ }$

$\pm\sqrt{y} = x$

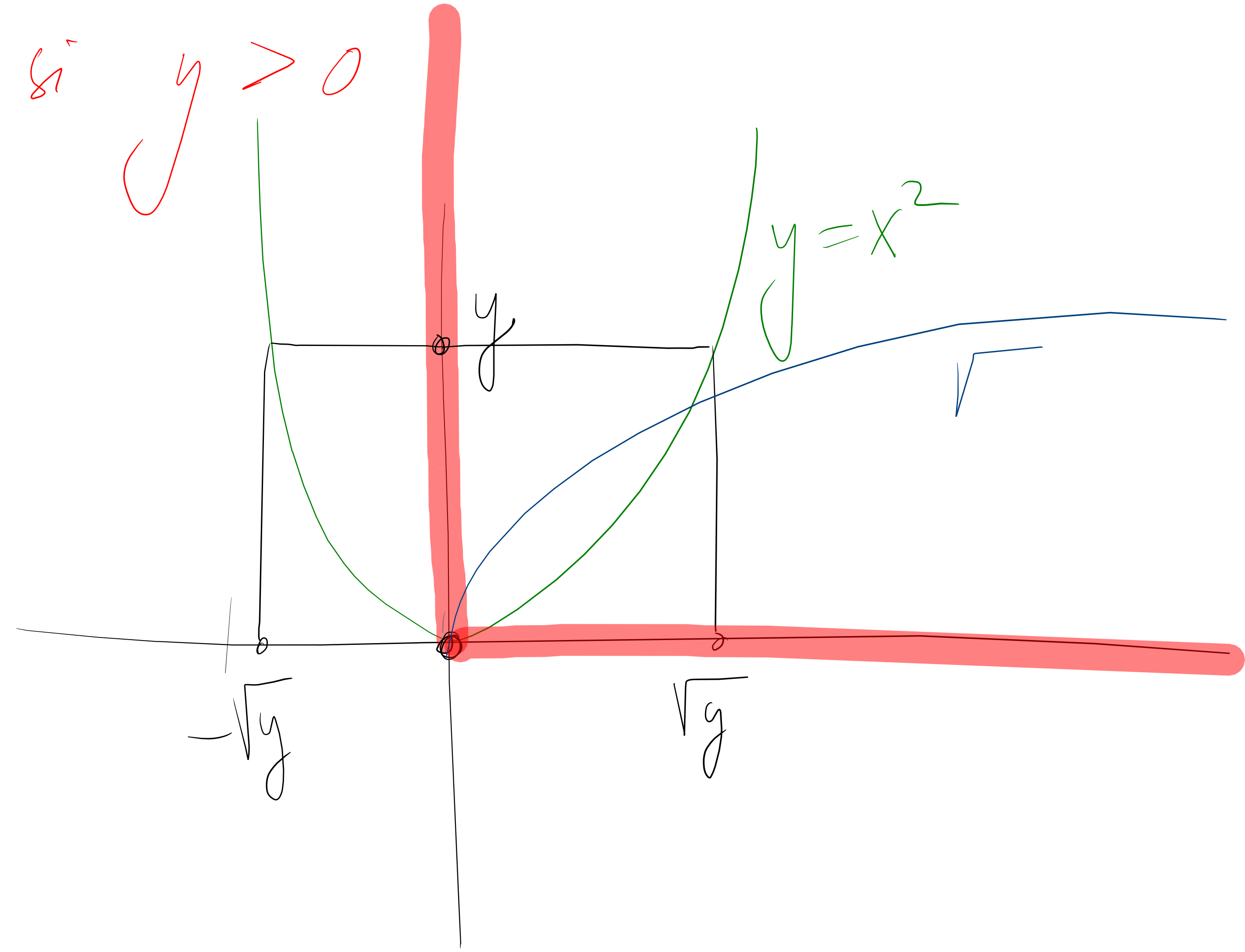
⚠ problème

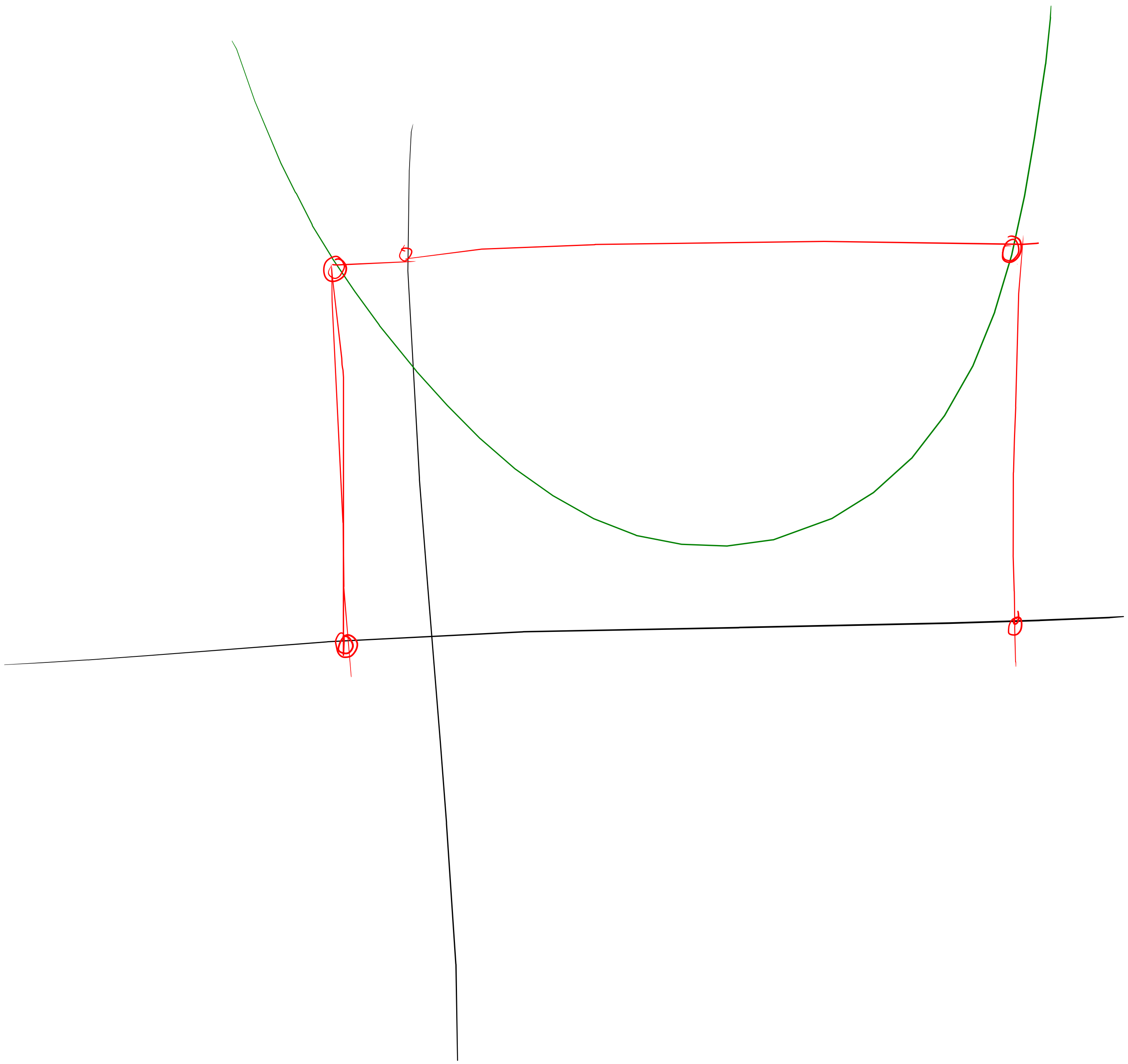
⚠

$x = \sqrt{y}$

OK si $y > 0$

$-5 = x^2$ ↯





$$\sqrt{1-x} + \sqrt{x-2}$$

$$1-x \geq 0 \Leftrightarrow 1 \geq x \Leftrightarrow x \leq 1$$

$$\frac{2^3}{\sqrt[7]{(2^2)^3}} = \frac{2^3}{(2^2)^{\frac{3}{7}}} = \frac{2^3}{2^{\frac{2}{1}\cdot\frac{3}{7}}} = \frac{2^3}{2^{\frac{6}{7}}} = 2^{\frac{3}{1}-\frac{6}{7}}$$

$$(2^n)^m = 2^{n\cdot m}$$

$$\sqrt[q]{2^p} = 2^{\frac{p}{q}}$$

$$2\cdot\frac{b}{c} = \frac{2}{1}\cdot\frac{b}{c} = \frac{2b}{c}$$

$$\sqrt{\frac{2x+1}{x^2-4}}$$

signe

$$f(x) = 2x - 3$$

$$\Leftrightarrow$$

$$y = 2x - 3$$

$$5 = 2x - 3$$

$$\frac{1280 \cdot 5^{7} \cdot 125}{(0{,}2 \cdot 25)^{3}} = \frac{\overset{128}{2^{7}} \cdot \overbrace{2 \cdot 5}^{10} \cdot 5^{7} \cdot 5^{3}}{(5^{-1} \cdot 5^{2})^{3}} = 2^{8} \cdot \frac{5^{11}}{5^{3}} = 2^{8} \cdot 5^{8} = 10^{8}$$

$$f(x) = \frac{P(x)}{Q(x)}$$

$\boxed{\text{À exclure :}}$ Les solutions de $\boxed{Q(x) = 0}$

$x+1=0 \Leftrightarrow x=-1$

$\boxed{\text{Zéros :}}$ Les solutions de $P(x)=0$ qui ne sont pas déjà exclues.

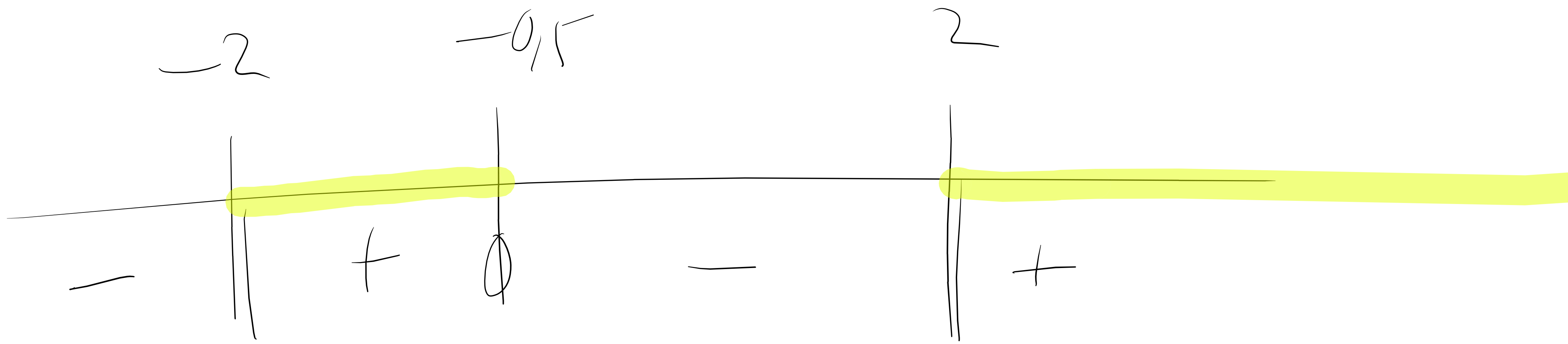
$$f_1 \circ f_2 (x) = f_1(f_2(x))$$

$$f_2 \circ f_1 (x) = f_2(f_1(x))$$

$$\frac{2x+1}{x^2-4} = \frac{2x+1}{(x+2)(x-2)}$$

Zero: $x = -0{,}5$

À exclure: $x = \pm 2$



$$\log(15) + 3\log(10) - \log(30) - \log(5) =$$

$$\log 3 + \log 5 + 3(\log 2 + \log 5) - (\log 2 + \log 3 + \log 5) - \log 5 =$$

$$\cancel{\log 3} + \cancel{\log 5} + \cancel{3\log 2} + \cancel{3\log 5} - \cancel{\log 2} - \cancel{\log 3} - \cancel{\log 5} - \cancel{\log 5} =$$

$$2\log 5 + 2\log 2 = 2\log 10 = 2$$

$y = 4x - x^2 = -x^2 + 4x$ $\quad S(2;4)$

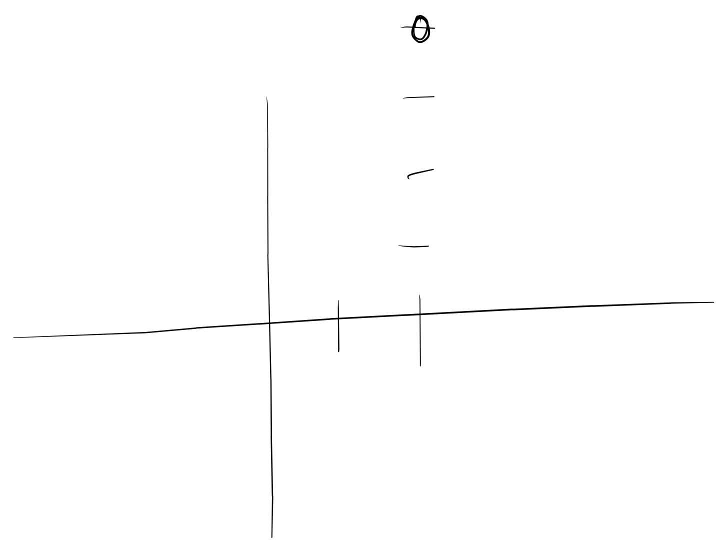
$-x(x-4)$

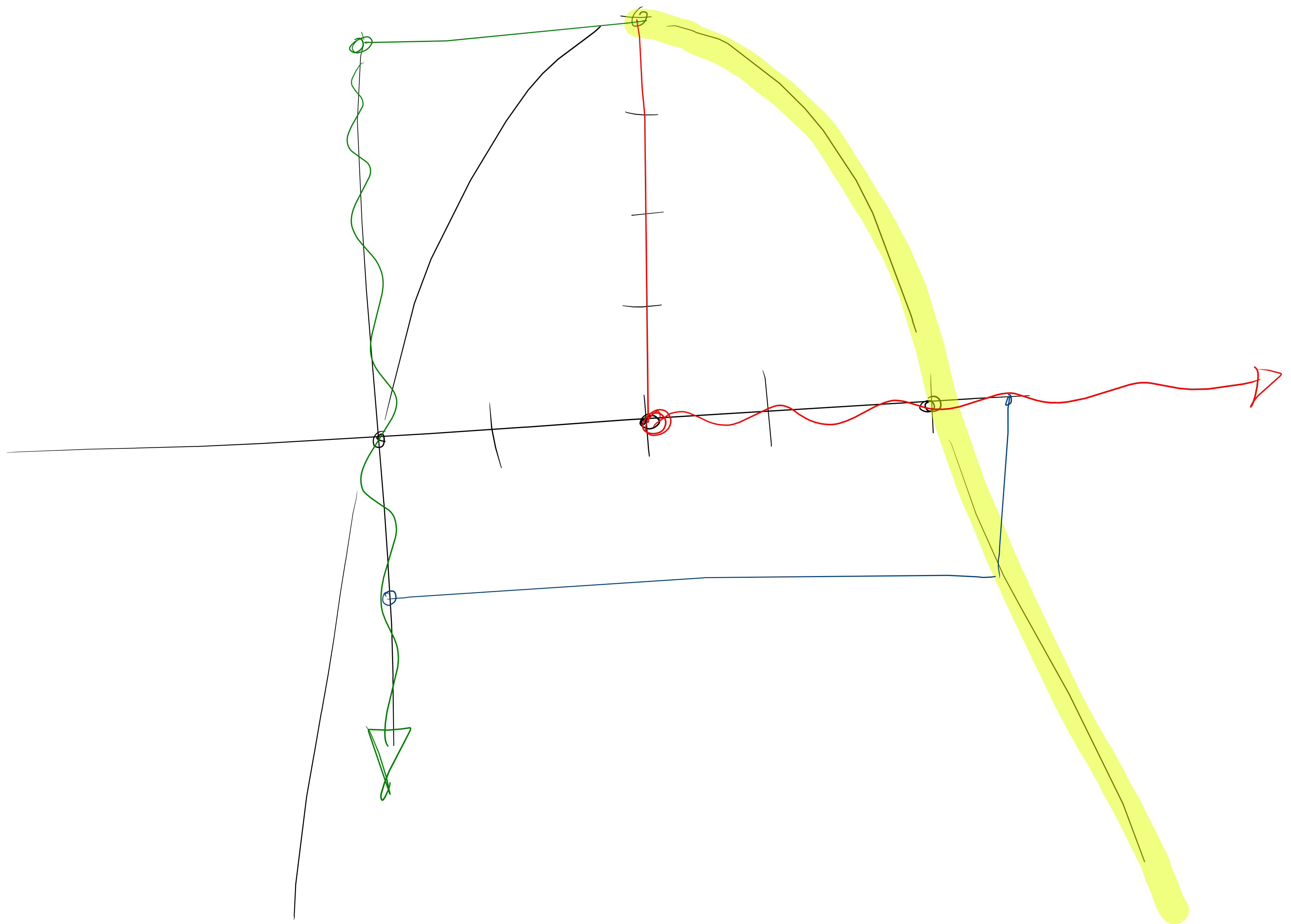
NON BIJECTIF

$x^2 - 4x + y = 0$

$a=1 \quad b=-4 \quad c=y$

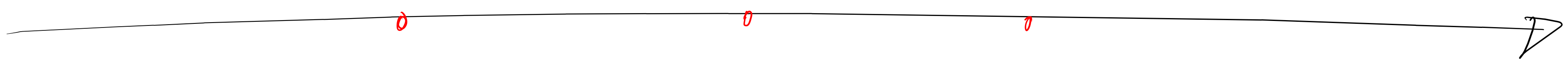
$$x = \frac{4 \pm \sqrt{16-4y}}{2}$$





$$\mathbb{R} \setminus \{x_1; x_2; x_3\}$$

$$f(x) = \frac{1}{(x-2)(x+1)(x-3)} \qquad D_f = \mathbb{R} - \{x_1; x_2; x_3\}$$



$x_1 = -1 \qquad x_2 = 2 \qquad x_3 = 3$

$\sqrt{4x - x^2}$

	0		4	
$-$	0	$+$	0	$-$

existe si $4x - x^2 \geq 0$, x entre 0 et 4, y compris

$$D_f = [0\,;4]$$

$$f_1(x) = \frac{2}{3}x - 8$$

$$f_2(x) = x^2 - 4$$

$$f_1 \circ f_2(x) = f_1(f_2(x))$$

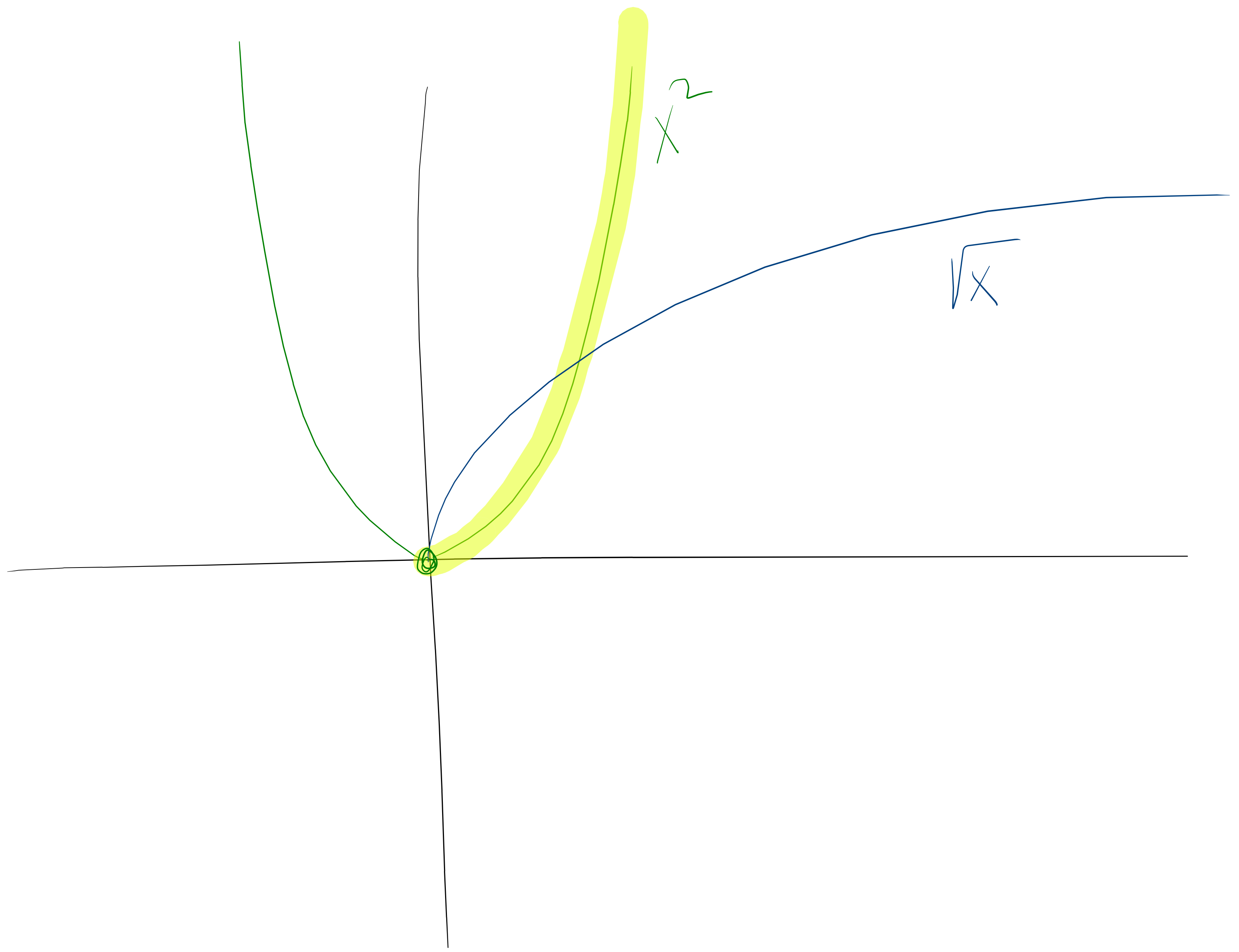
$$= f_1(x^2 - 4)$$

$$= \frac{2}{3}(x^2 - 4) - 8$$

$$= \frac{2}{3}x^2 - \frac{32}{3}$$

$$f_2 \circ f_1(x) = f_2(f_1(x))$$

$$= f_2\left(\frac{2}{3}x - 8\right) = \left(\frac{2}{3}x - 8\right)^2 - 4$$



$$\sqrt{x^2} = x$$

$$y = \frac{x}{x-1} \overset{\cdot (x-1)}{\iff} y \cdot (x-1) = x$$

$$5 = \frac{10}{2}$$

$$y \cdot \frac{(x-1)}{1} = \frac{x}{\cancel{x-1}} \cdot \cancel{\frac{x-1}{1}}$$

$$A = \frac{B}{C}$$

$$AC = B$$

$$y \cdot (x-1) = x$$

$$yx - y = x$$

$$yx - x = y$$

$$(y-1)\,x = y$$

$$\boxed{x = \frac{y}{y-1}}$$

$$(x+1)^2+(x+1)=(x+1)(x+1)+(x+1)$$

$$=x^2+2x+1+x+1$$

$$\sqrt[3]{\sqrt{7}} = \sqrt[3]{\sqrt[2]{7^{1}}} = \sqrt[3]{\left(7^{\frac{1}{2}}\right)^{1}} = \left(7^{\frac{1}{2}}\right)^{\frac{1}{3}}$$

$$= 7^{\frac{1}{6}}$$

$$= \sqrt[6]{7}$$

$$\boxed{\sqrt{} = \sqrt[2]{}}$$

NOT.