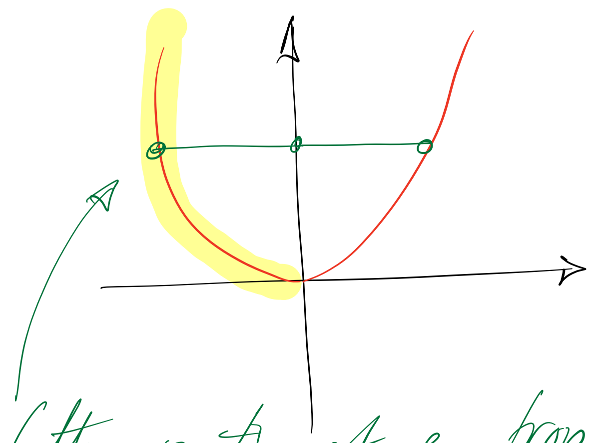
a)



$f(x) = x^2$

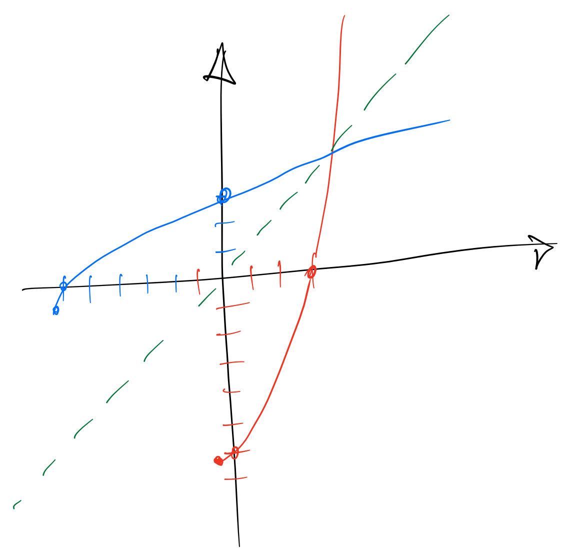
$g : [0;+\infty[\xrightarrow{\sim} [0;+\infty[$ est une bijection.

En effet, si $y \geq 0$, l'équation $y = x^2$ admet une solution unique : $x = \sqrt{y}$

$g^{r}(x) = \sqrt{x}$.

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

$S\left(-\frac{1}{2} ; -\frac{25}{4}\right)$



$g : [-\frac{1}{2} ; +\infty[\xrightarrow{\sim} [-\frac{25}{4} ; +\infty[$

$x \longmapsto x^2 + x - 6$

$$y = x^2 + x - 6$$

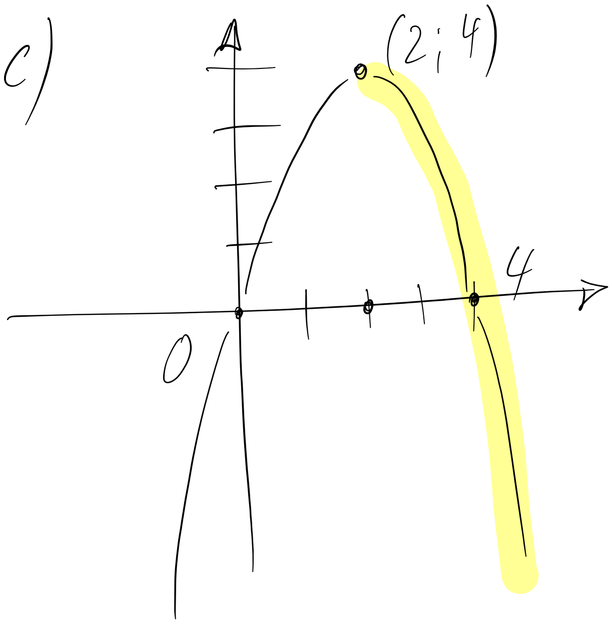
$$y = x^2 + 2 \cdot x \cdot \frac{1}{2} + \frac{1}{4} - \frac{25}{4}$$

$$y + \frac{25}{4} = \left(x + \frac{1}{2}\right)^2$$

$$x = \sqrt{y + \frac{25}{4}} - \frac{1}{2}$$

Ainsi, $g^r(x) = \sqrt{x + \frac{25}{4}} - \frac{1}{2}$

c)



$$g : [2; +\infty[\xrightarrow{\sim}]4; -\infty[$$

$$y = -1\,(x^2 - 4x + 4 - 4)$$

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

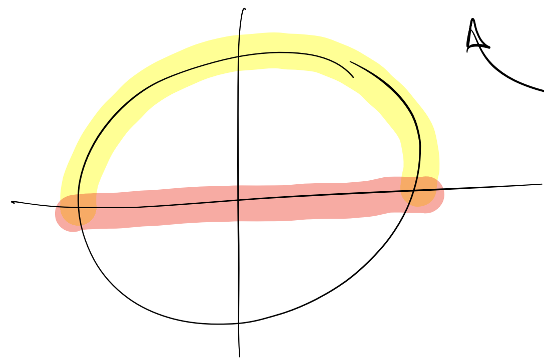
$$4 - y = (x-2)^2$$

$x = \sqrt{4-y} + 2 \quad \Rightarrow \quad {}^r g(x) = \sqrt{4-x} + 2$

existe ssi $y \in [4; -\infty[$

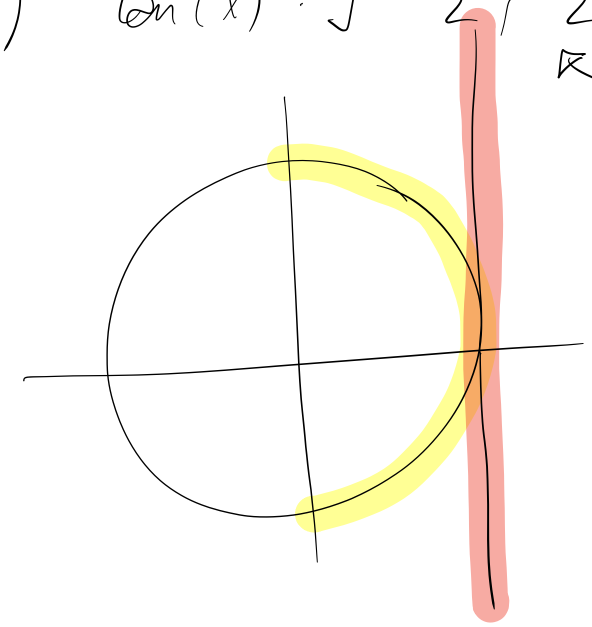
d) $\cos : [0; \pi[\xrightarrow{\sim} [-1; 1]$

arccos



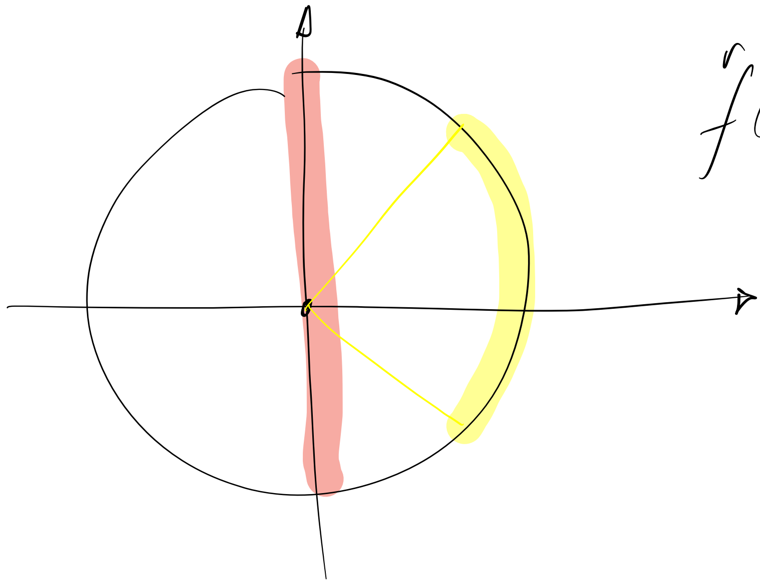
e) $\tan(x) :]-\frac{\pi}{2}; \frac{\pi}{2}[\xrightarrow{\sim} \mathbb{R}$

arctan



f) $f : \left[-\frac{\pi}{4} ; \frac{\pi}{4}\right] \xrightarrow{\sim} [-1 ; 1]$

$x \longmapsto \sin(2x)$



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

Vu que $\left[-\frac{\pi}{4} ; \frac{\pi}{4}\right] \xrightarrow{\sim} \left[-\frac{\pi}{2} ; \frac{\pi}{2}\right]$

$x \longmapsto 2x$