

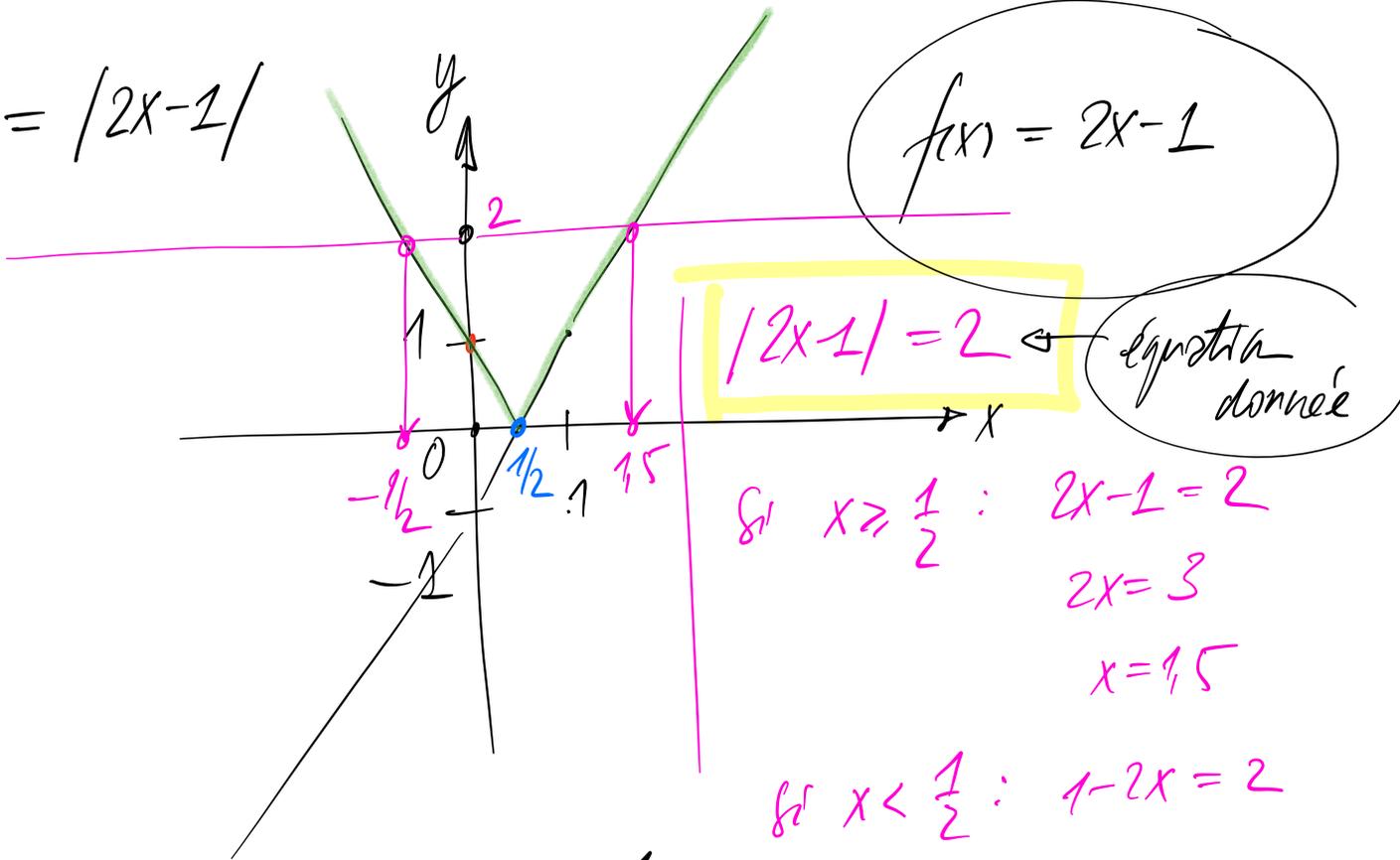
Soit $x \in \mathbb{R}$

$$|x| = \begin{cases} x & \text{si } x \geq 0 \\ -x & \text{sinon} \end{cases}$$

Exemple: $|-5| = 5$ $|3| = 3$

$$|\sqrt{2}| = \sqrt{2} \quad |-\sqrt{2}| = \sqrt{2}$$

$$g(x) = |2x-1|$$

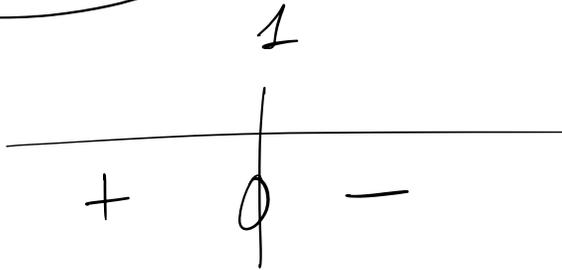


$$g(x) = \begin{cases} 2x-1 & \text{si } x \geq \frac{1}{2} \\ 1-2x & \text{sinon} \end{cases}$$

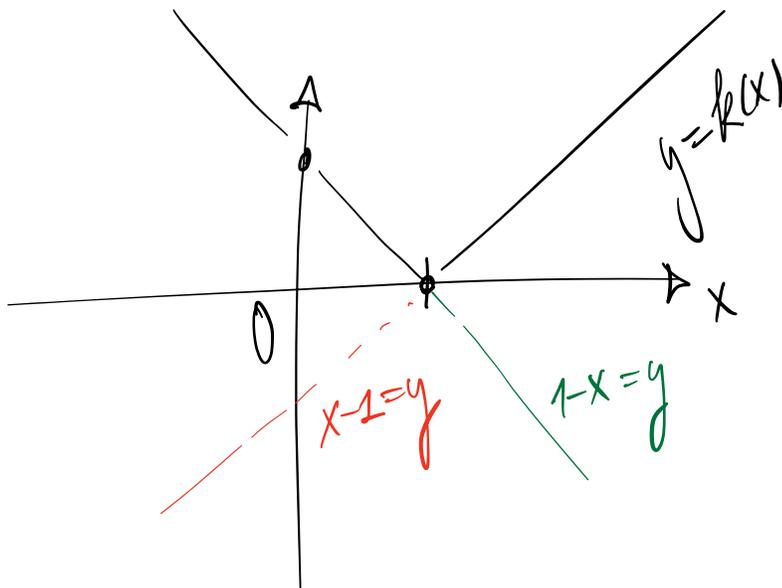
$$h(x) = 1-x$$

$$h(x) = |1-x| = \begin{cases} 1-x & \text{si } 1-x \geq 0 \\ -(1-x) & \text{si } 1-x < 0 \end{cases}$$

Signe $1-x$



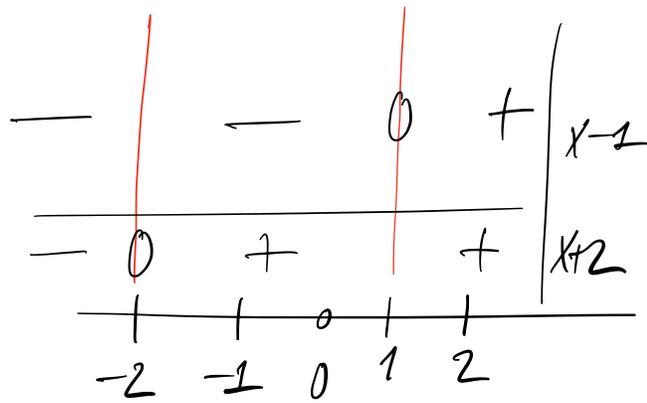
$$h(x) = \begin{cases} 1-x & \text{si } x \leq 1 \\ x-1 & \text{si } x > 1 \end{cases}$$



$$4 - |x+2| = 3(|x-1| - 1)$$

$$\boxed{|x+2| + 3|x-1| = 7}$$

$$|x+2| = \begin{cases} x+2 & \text{si } x \geq -2 \\ -x-2 & \text{si } x < -2 \end{cases}$$



$$|x-1| = \begin{cases} x-1 & \text{si } x \geq 1 \\ 1-x & \text{si } x < 1 \end{cases}$$

$$x < -2 \quad \left| \quad -2 \leq x < 1 \quad \right| \quad x \geq 1$$

$$\boxed{x \geq 1}$$

$$x+2 + 3x-3 = 7$$

$$4x = 8$$

$$\boxed{x = 2} \text{ et } 2 \geq 1 \quad \checkmark$$

$$\boxed{-2 \leq x < 1}$$

$$x+2 + 3 - 3x = 7$$

$$-2 = 4x$$

$$\boxed{x = -\frac{1}{2}} \text{ et } -2 \leq -\frac{1}{2} < 1 \quad \checkmark$$

$$\boxed{x < -2}$$

$$-x-2 + 3 - 3x = 7$$

$$-4x = 6$$

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

$$\text{car } -2 < -\frac{3}{2}$$

$$S = \left\{ -\frac{1}{2}; 2 \right\}$$

$$|5-3x| = 8$$

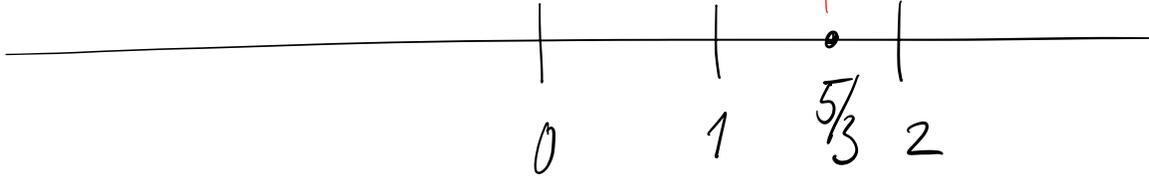
$$|a| = \begin{cases} a & \text{si } a \geq 0 \\ -a & \text{si } a < 0 \end{cases}$$

$5-3x$

+

0

-



$$\boxed{\text{si } x \leq \frac{5}{3}}$$

$$|5-3x| = 5-3x$$

$$\Rightarrow 5-3x=8 \quad 3x=-3 \quad x=-1 \quad \text{et } -1 \leq \frac{5}{3}$$

$$\boxed{\text{si } x > \frac{5}{3}}$$

$$|5-3x| = -(5-3x)$$

$$= -5+3x = 3x-5$$

$$\Rightarrow 3x-5=8 \quad 3x=13 \quad x=\frac{13}{3} \quad \text{et } \frac{13}{3} > \frac{5}{3}$$

$$S' = \left\{ -1; \frac{13}{3} \right\}$$