$$\begin{aligned} \mathbb{R} &\longrightarrow \mathbb{R} \\ x &\longmapsto \frac{ax+b}{cx+d} \end{aligned}$$

$$\begin{aligned} \mathbb{R} &\longrightarrow \mathbb{R} \\ x &\longmapsto ax^2+bx+c \end{aligned}$$

Etude complète

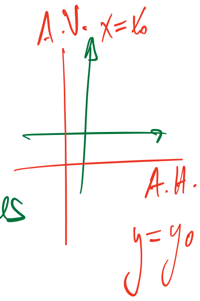
① ED

② Zéros $f(x)=0$

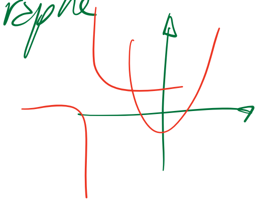
③ Signe

	x_1		x_2	
$+$	$\vert$	$-$	$\Vert$	$+$

④ Asymptotes < verticales, horizontales



⑤ Graphe



Asymptotes de $\frac{x-2}{1-x}$

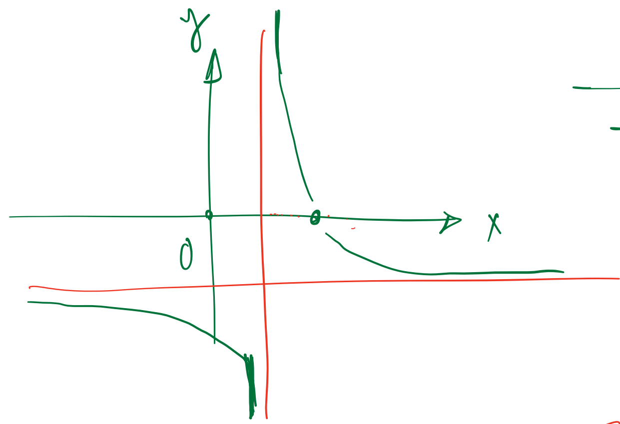
$$\begin{aligned} \mathbb{R} &\longrightarrow \mathbb{R} \\ x &\longmapsto \frac{x-2}{1-x} \end{aligned}$$

$ED_f = \mathbb{R}-\{1\}$

$\frac{2-2}{1-2} = \frac{0}{-1} = 0$ ✓

Zéros : $\frac{x-2}{1-x} = 0 \Rightarrow x-2=0 \Rightarrow \boxed{x=2}$ ✓

Près de 1 : $« \frac{1-2}{1-1} » = « \frac{-1}{0} » = \infty$ $\boxed{\text{A.V. en } x=1}$



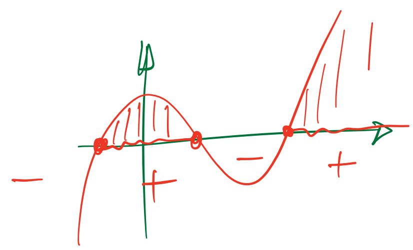
	1		2	
−		+		−

$\boxed{\text{A.H. en } y=-1}$

« À l'∞ » : $\dfrac{(\cdot \frac{1}{x})\ x-2}{(\cdot \frac{1}{x})\ 1-x} = \boxed{\dfrac{1-2/x}{1/x-1}} \xrightarrow{x\to\infty} \dfrac{1}{-1} = -1$

$x \neq 0$

$x^3-4x^2+x+6>0$



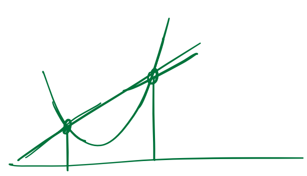
	1	−4	1	6
1		1	−3	−2
	1	−3	−2	4

$D_6 = \{\pm 1 ; \pm 2 ; \pm 3 ; \pm 6\}$

$\boxed{ax^2+bx+c} = a(x-s_1)^2+s_2$

$S(s_1 ; s_2)$ est le sommet

$y=x$ et $y=a(x-s_1)^2+s_2$



$y = x$

$y = a(x - s_1)^2 + s_2$

$\Rightarrow \quad x = a(x - s_1)^2 + s_2$

$S = \{x_0\} \quad \Rightarrow \quad \Delta_a = 0$

unique