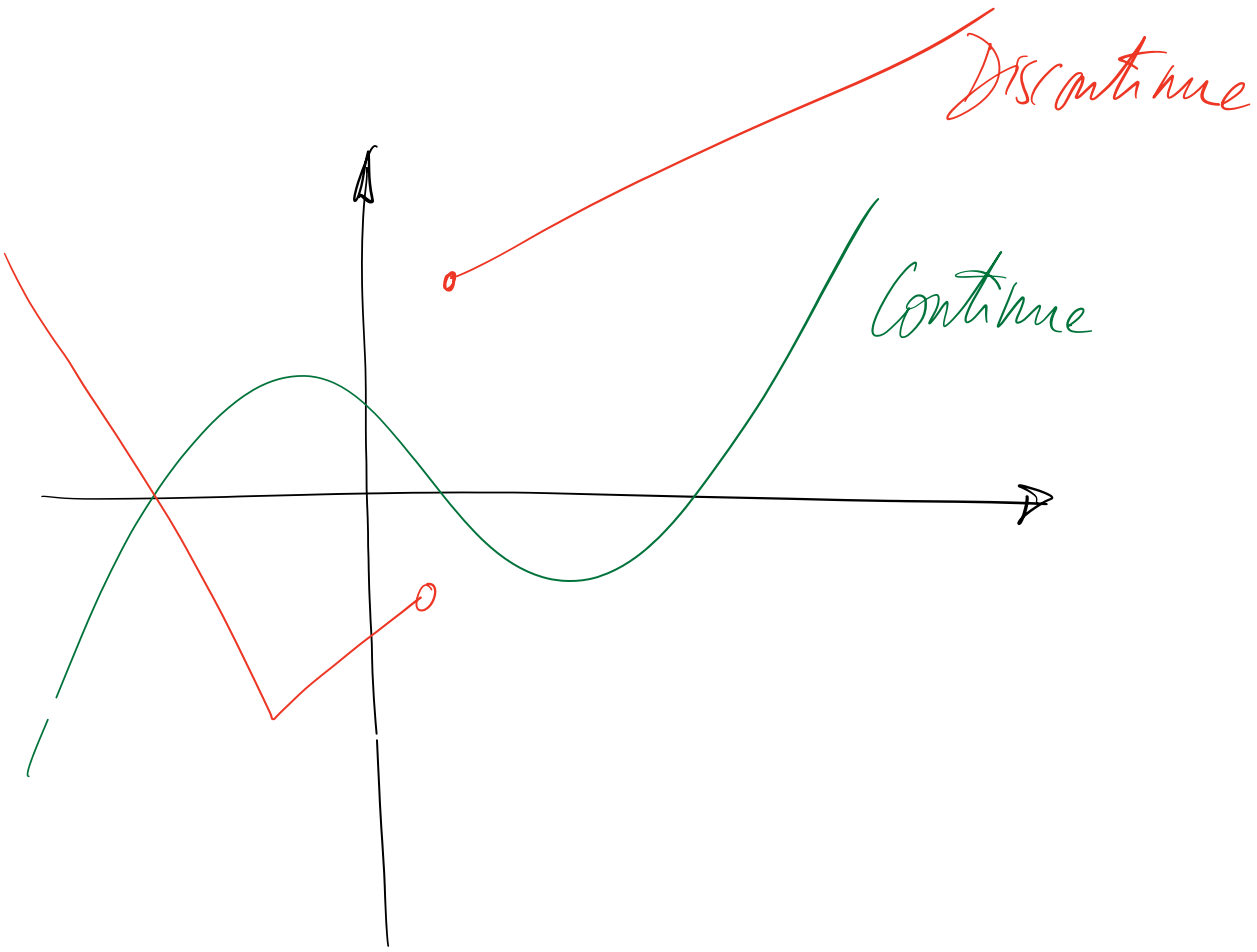
CONTINUITÉ

CONTINU ↔ ININTERROMPU

TRAIT CONTINU :

ON NE LÈVE PAS LE CRAYON.



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

$(x+1)^2$ / $(x+1)(x-1)$

ED

f

Zeros

Signe

$$g(x) = \frac{x^2+5x+4}{x^2-2x-15}$$

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

$$f(0) = \frac{1^2}{1(-1)} < 0$$

$$g(x) = \frac{(x+1)(x+4)}{(x-5)(x+3)}$$

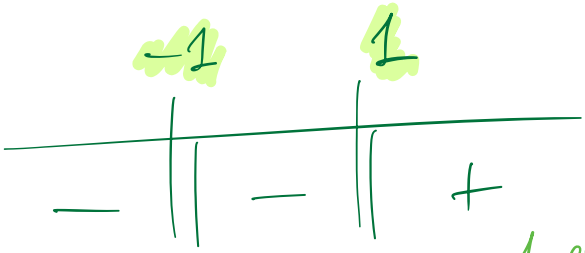
$D_f = \mathbb{R} - \{\pm 1\}$ / Bs de zero /

	−1		1	
	− ‖	− ‖		+

$D_g = \mathbb{R} - \{-3; 5\}$ / Zeros(g): $x=-1$ / $x=-4$

	−4		−3		−1		5	
+	0	− ‖		+	0	− ‖		+

$$f(x) = \frac{(x+1)^2}{(x+1)(x-1)} \qquad D_f = \mathbb{R} - \{\pm 1\}$$



ETUDIER LA CONTINUITÉ

Vu que 1 est EXCLU

$x = 1$

$$\lim_{x \to 1} f(x) = \lim_{x \to 1} \frac{(x+1)(x+1)}{(x+1)(x-1)} = \ll \frac{1+1}{1-1} \gg$$

$$= \ll \frac{2}{0} \gg = \infty$$

A.V. en $x = 1$

La fonction est DISCONTINUE en $x = 1$

$x = -1$

$$\lim_{x \to -1} f(x) = \ll \frac{0}{0} \gg$$

$$= \ll \frac{(-1)^2 + 2(-1) + 1}{(-1)^2 - 1} \gg = \ll \frac{0}{0} \gg \text{ IND.}$$

On peut PROLONGER f PAR CONTINUITÉ :

$$= \lim_{x \to -1} \frac{x+1}{x-1} = \ll \frac{0}{-2} \gg$$

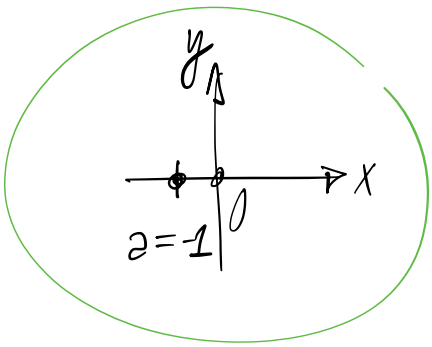
$$= 0$$

$f(-1) = 0$

CRM 30

27 a) p. 66

$$f(x) = \frac{x^2-1}{x+1} \qquad a = -1$$



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

$$\lim_{x \to a} f(x) = \lim_{x \to -1} f(x) = \lim_{x \to -1} \frac{(x+1)(x-1)}{(x+1)} = \lim_{x \to -1} (x-1)$$

$$= -2$$

On peut prolonger f par continuité en posant $f(-1) = -2$

CONJUGUÉ

$$\frac{(A-B)}{C} \cdot \frac{(A+B)}{A+B} = \frac{(A-B)(A+B)}{C \cdot (A+B)} = \frac{A^2-B^2}{C \cdot (A+B)}$$