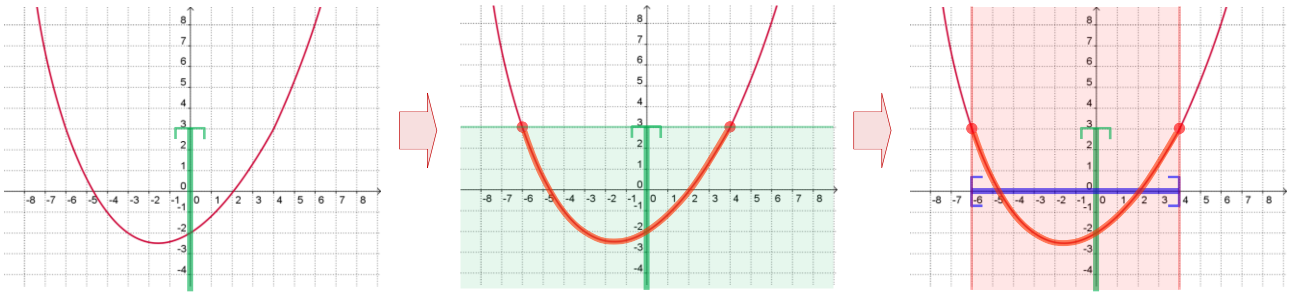
Correction de 2de - FONCTIONS - Fiche 5

① **1.** **a.** Je traduis $h(x) \leqslant 3$ par l'intervalle $]-\infty\,;3\,]$ sur l'axe des ordonnées :

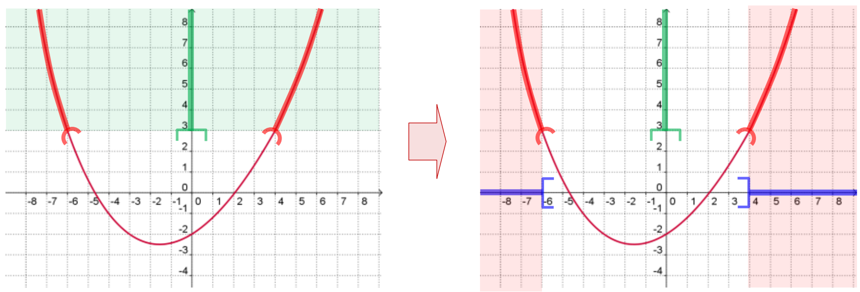
La zone des points ayant ces ordonnées rencontre un morceau de la courbe :

La zone de ce morceau de courbe rencontre un intervalle de l'axe des abscisses :



$\mathscr{S} = [\,-6\,;4\,]$

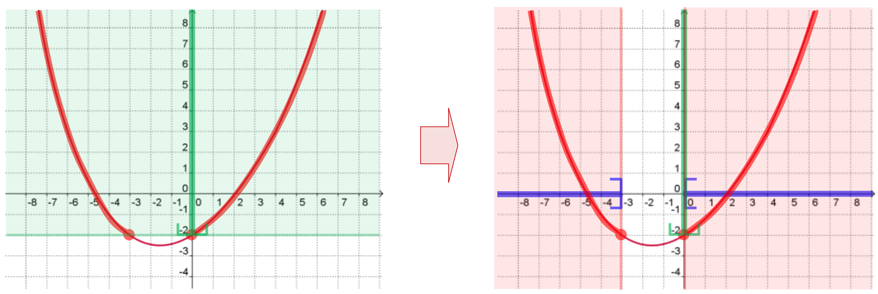
b.



Remarquez que les zones n'ont plus leur frontière.

$\mathscr{S} =]-\infty\,;-6\,[\, \cup \,]\,4\,;+\infty\,[$

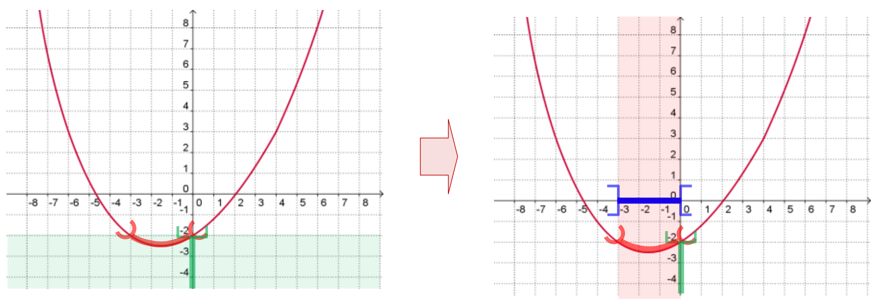
c.



Les zones ont leur frontière.

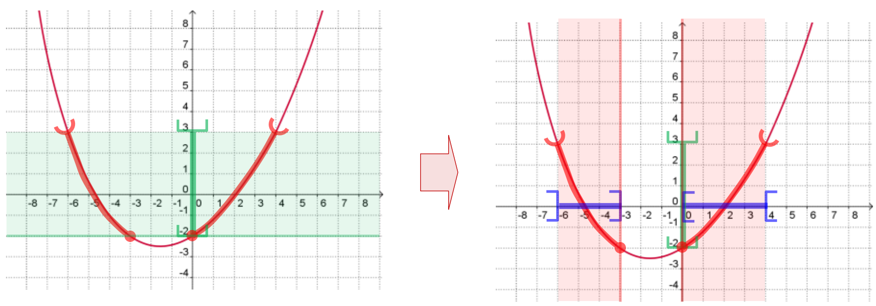
$\mathscr{S} =]-\infty\,;-3\,] \cup [\,0\,;+\infty\,[$

d.



$\mathscr{S} =]-3\,;0\,[$

e.



Les zones n'ont qu'une des deux frontières.

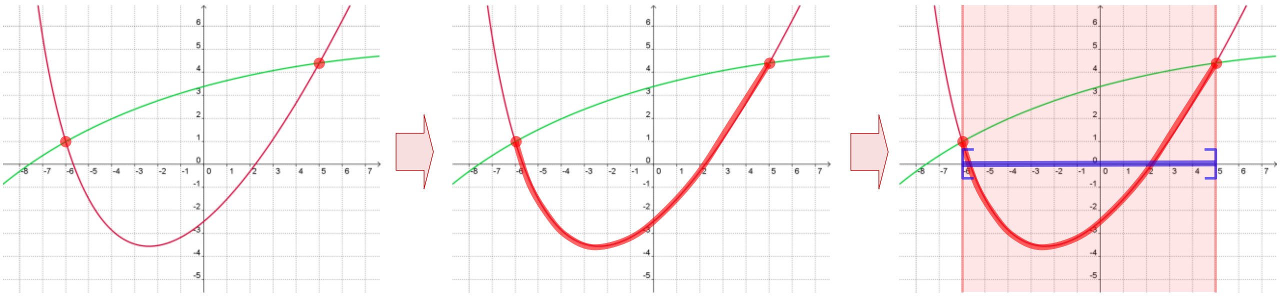
$\mathscr{S} =]-6\,;-3\,] \cup [\,0\,;4\,[$

2. a. $\mathscr{S} = [\,-7\,;-2\,] \cup [\,1\,;8\,] \cup \{\,10\,\}$ → Attention à ne pas oublier l'extrémité de la courbe : le point $(\,10\,;-3\,)$ est compris...

b. $\mathscr{S} =]\,-7\,;-6\,[\cup]\,-4\,;-2\,[\cup]\,1\,;4\,[\cup]\,6\,;8\,[$ → Cette fois, les extrémités ne doivent pas être prises !

c. $\mathscr{S} = \varnothing$

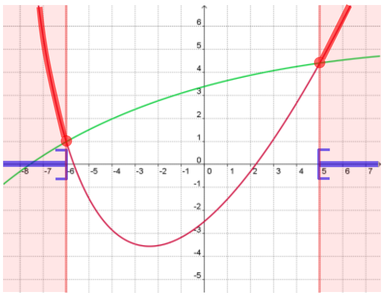
3. a. Je trouve les points d'intersection entre les deux courbes : | Entre ces points d'intersection, je repère la partie de $\mathscr{C}_f$ sous $\mathscr{C}_g$: | La zone de ce morceau de courbe rencontre un intervalle de l'axe des abscisses :



$\mathscr{S} = [\,-6\,;5\,]$

b. $\mathscr{S} =]\,-6\,;5\,[$ → Il suffit d'enlever les extrémités.

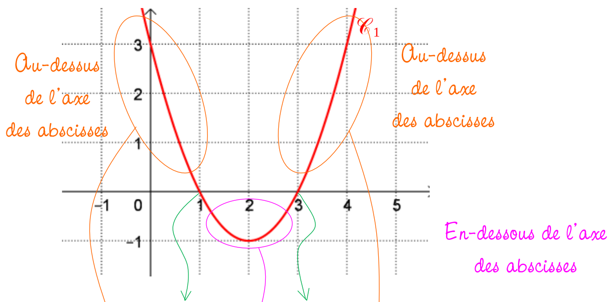
c.



$\mathscr{S} =]\,-\infty\,;-6\,] \cup [\,5\,;+\infty\,[$

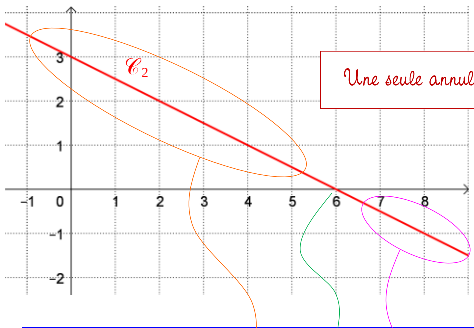
4. $\mathscr{S} = [\,-3\,;0\,] \cup [\,2\,;5\,] \cup [\,7\,;10\,] \cup [\,12\,;+\infty\,[$

②



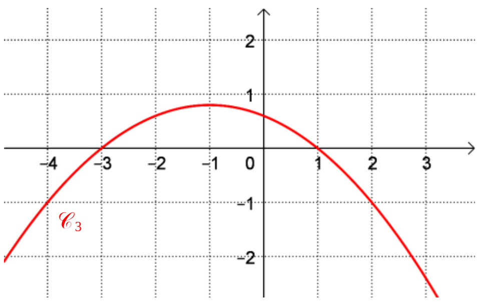
x	$-\infty$		1		3		$+\infty$
signes de $f_1(x)$		+	0	−	0	+	

Positif Négatif Positif

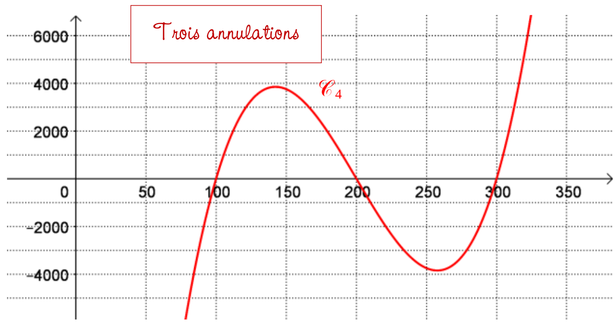


Une seule annulation

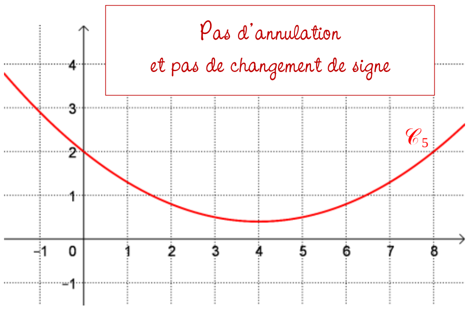
x	$-\infty$		6		$+\infty$
signes de $f_2(x)$		+	0	−	



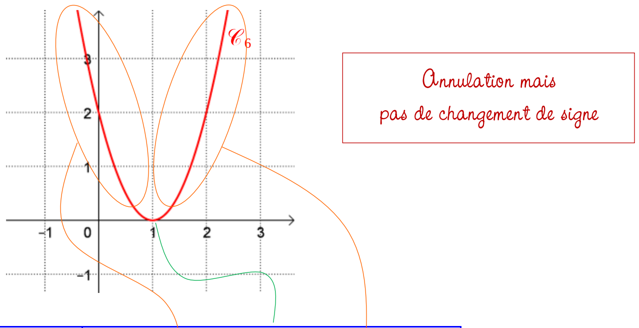
x	$-\infty$		−3		1		$+\infty$
signes de $f_3(x)$		−	0	+	0	−	



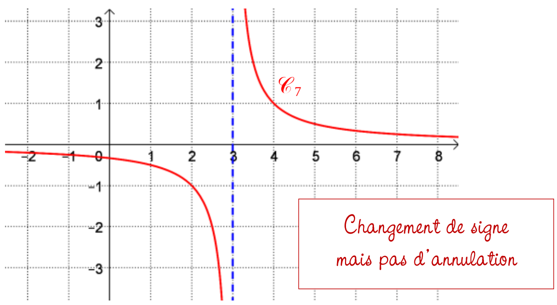
x	$-\infty$		100		200		300		$+\infty$
signes de $f_4(x)$		−	0	+	0	−	0	+	



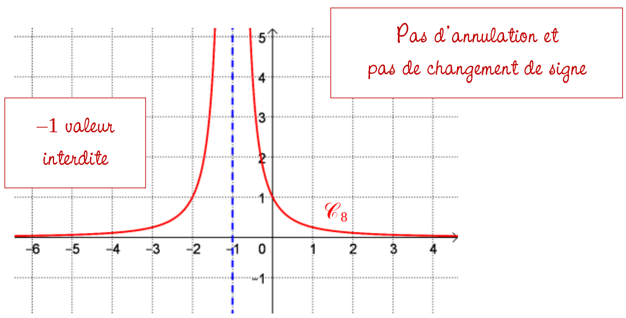
x	$-\infty$		$+\infty$
signes de $f_5(x)$		+	



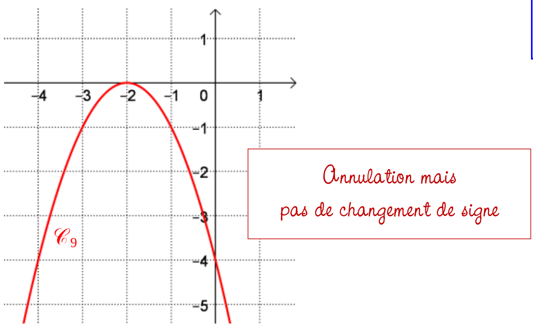
x	$-\infty$		1		$+\infty$
signes de $f_6(x)$		+	0	+	



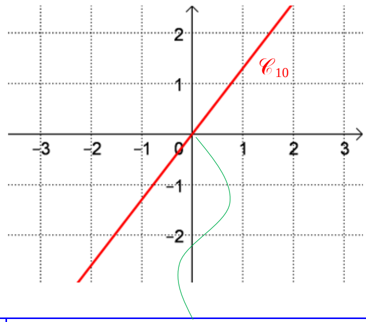
x	$-\infty$		3		$+\infty$
signes de $f_7(x)$		−	‖	+	



x	$-\infty$		-1		$+\infty$
signes de $f_8(x)$		+	‖	+	

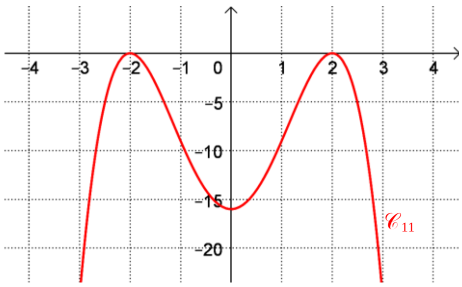


x	$-\infty$		-2		$+\infty$
signes de $f_9(x)$		−	0	−	

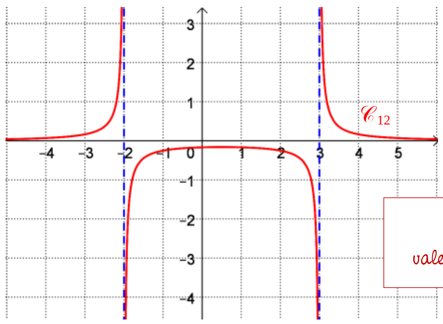


x	$-\infty$		0		$+\infty$
signes de $f_{10}(x)$		$-$	0	$+$	

Deux annulations mais pas de changement de signe



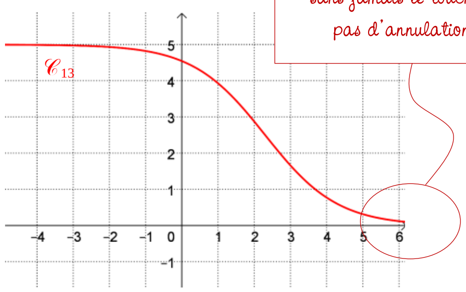
x	$-\infty$		-2		2		$+\infty$
signes de $f_{11}(x)$		$-$	0	$-$	0	$-$	



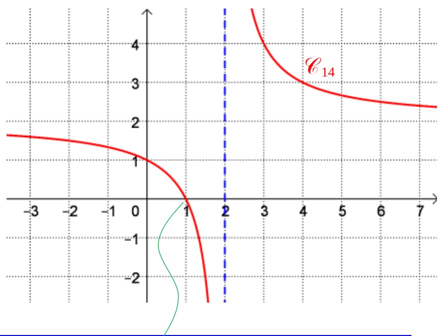
-2 et 3 valeurs interdites

x	$-\infty$		-2		3		$+\infty$
signes de $f_{12}(x)$		$+$	‖	$-$	‖	$+$	

Si on continue vers $+\infty$, la courbe va se rapprocher de l'axe des abscisses sans jamais le toucher : pas d'annulation.

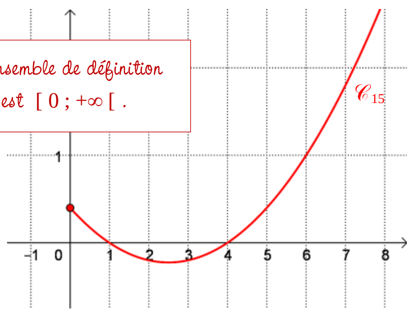


x	$-\infty$		$+\infty$
signes de $f_{13}(x)$		$+$	

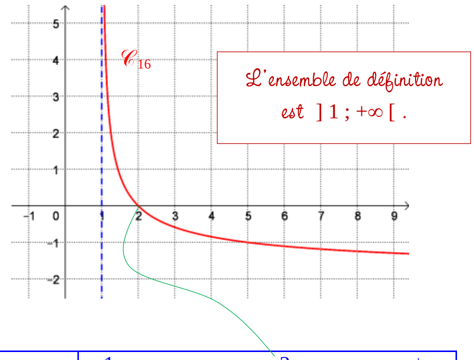


x	$-\infty$		1		2		$+\infty$
signes de $f_{14}(x)$		$+$	0	$-$	‖	$+$	

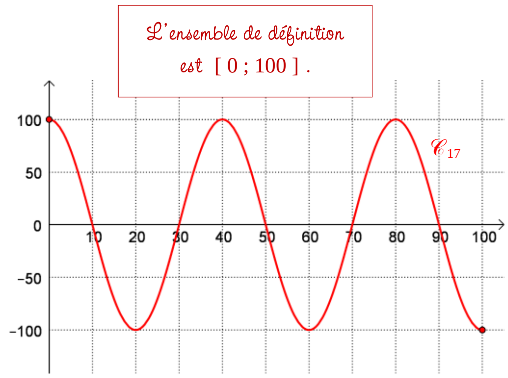
L'ensemble de définition est $[\,0\,;+\infty\,[$.



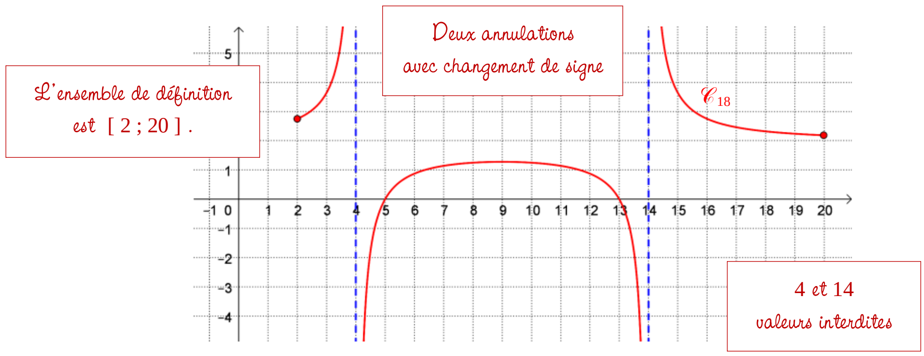
x	0		1		4		$+\infty$
signes de $f_{15}(x)$		$+$	0	$-$	0	$+$	



x	1		2		$+\infty$
signes de $f_{16}(x)$	‖	+	0	–	



x	0		10		30		50		70		90		100
signes de $f_{17}(x)$		+	0	–	0	+	0	–	0	+	0	–	



x	2		4		5		13		14		20
signes de $f_{17}(x)$		+	‖	–	0	+	0	–	‖	+	