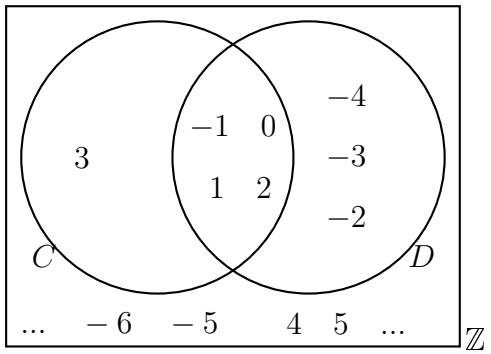
N.E. - Chapitre 1 : Premières notions

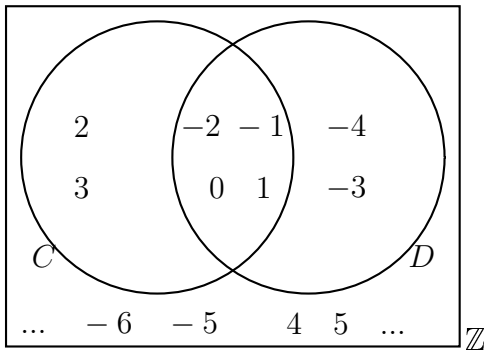
Série A	Série B

Exercice 1. (1+1+1=3 pts)

$A = \{ -2\,;0 \}$	$A = \{ -3\,;0 \}$
$B = \{ -6\,;\ -5\,;\ -4\,;\ 4\,;\ 5\,;\ 6 \}$	$B = \{ -5\,;\ -4\,;\ -3\,;\ 3\,;\ 4\,;\ 5 \}$
$C = \emptyset$	$C = \emptyset$

Exercice 2. (diag.Venn : 1+1+1+1+1=5 pts)



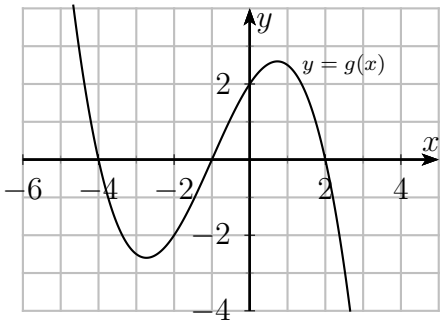


a) $C \cap D = \{-1\,;0\,;1\,;2\}$	$C \cap D = \{-2\,;-1\,;0\,;1\}$
b) $C \cup D = \{-4\,;-3\,;-2\,;-1\,;0\,;1\,;2\,;3\}$	$C \cup D = \{-4\,;-3\,;-2\,;-1\,;0\,;1\,;2\,;3\}$
c) $C \setminus D = \{\,3\,\}$	$C \setminus D = \{\,2\,;\,3\,\}$
d) $\mathbb{Z} \setminus (C \cup D) = \{...\,;-6\,;-5\,;4\,;5\,;...\}$	$\mathbb{Z} \setminus (C \cup D) = \{...\,;-6\,;-5\,;4\,;5\,;...\}$

Exercice 3. (3 pts)

$f(x) = \dfrac{x-1}{x^2-9}$	$f(x) = \dfrac{x-5}{x^2-4}$
$x^2 - 9 = 0 \Rightarrow (x+3)(x-3) = 0 \Rightarrow$	$x^2 - 4 = 0 \Rightarrow (x+2)(x-2) = 0 \Rightarrow$
$\Rightarrow \{-3\,;3\} \notin ED \Rightarrow ED = \mathbb{R} \setminus \{-3\,;3\}$	$\Rightarrow \{-2\,;2\} \notin ED \Rightarrow ED = \mathbb{R} \setminus \{-2\,;2\}$

Exercice 4. (1.5+1+1+1+1.5=6 pts)



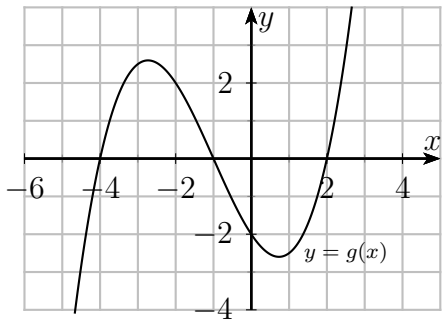
a) $Z_g \cong \{-4\,;-1\,;2\,\}$

b) $g(1) \cong 2.5$

c) $g(-3) \cong -2.5$

d) $\mathrm{Im}(g) = \mathbb{R}$

e) $g(x) = 2 \Rightarrow S \cong \{-4.5\,;0\,;1.5\,\}$



$Z_g \cong \{-4\,;-1\,;2\,\}$

$g(1) \cong -2.5$

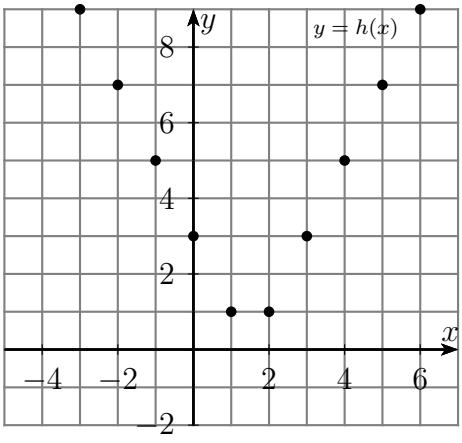
$g(-3) \cong 2.5$

$\mathrm{Im}(g) = \mathbb{R}$

$g(x) = 2 \Rightarrow S \cong \{-3.5\,;-2\,;2.3\,\}$

Exercice 5. (3 pts)

$$\begin{array}{rccl} h: & \mathbb{Z} & \to & \mathbb{N}^* \\ & x & \mapsto & |2x-3| \end{array}$$



$$\begin{array}{rccl} h: & \mathbb{Z} & \to & \mathbb{N}^* \\ & x & \mapsto & |2x-1| \end{array}$$