FONCTIONS DE RÉFÉRENCE

Domaine de définition

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https://bit.ly/3W4ZXWm

1. Pose les conditions d'existence et détermine le domaine de définition des fonctions suivantes :

(1) $f(x)=\sqrt{x-2}$

CE : $x-2\geq 0$

$x\geq 2$

$\Rightarrow$ dom $f=[2;\rightarrow$

(2) $f(x)=\dfrac{2x}{\sqrt{9-x}}$

CE : $9-x>0$

$9>x$

$\Rightarrow$ dom $f=\leftarrow;9[$

(3) $f(x)=\dfrac{(x+1)^2}{2x}$

CE : $2x\neq 0$

$x\neq 0$

$\Rightarrow$ dom $f=\mathbb{R}_0$

(4) $f(x)=x^2+4x-3$

CE : aucune

$\Rightarrow$ dom $f=\mathbb{R}$

(5) $f(x)=\dfrac{\sqrt{2x-1}}{\sqrt{3+x}}$

CE 1 : $2x-1\geq 0$

$2x\geq 1$

$x\geq \frac{1}{2}$

CE 2 : $3+x>0$

$x>-3$

$\Rightarrow$ dom $f=]-3;\rightarrow$

(6) $f(x)=\dfrac{-4}{\sqrt{2-6x}}$

CE : $2-6x>0$

$2>6x$

$\frac{1}{3}>x$

$\Rightarrow$ dom $f=\leftarrow;\frac{1}{3}[$

(7) $f(x)=\sqrt{2x-1}+\sqrt{3-x}$

CE1: $2x-1 \geq 0$

$2x \geq 1$

$x \geq \frac{1}{2}$

CE2: $3-x \geq 0$

$3 \geq x$

$\Rightarrow \text{dom } f = [\frac{1}{2}; 3]$

(8) $f(x)=\frac{3x+6}{4x^2-9}$

CE: $4x^2-9 \neq 0$

$(2x-3)(2x+3) \neq 0$

$x \neq \frac{3}{2}$ $\quad x \neq -\frac{3}{2}$

$\Rightarrow \text{dom } f = \mathbb{R} \setminus \{\frac{3}{2}; -\frac{3}{2}\}$

(9) $f(x)=\frac{x+7}{4x-12}$

CE: $4x-12 \neq 0$

$4x \neq 12$

$x \neq 3$

$\Rightarrow \text{dom } f = \mathbb{R} \setminus \{3\}$

(10) $f(x)=\frac{\sqrt{x+7}}{4x-12}$

CE1: $x+7 \geq 0$

$x \geq -7$

CE2: $4x-12 \neq 0$

$4x \neq 12$

$x \neq 3$

$\Rightarrow \text{dom } f = [-7; \to \setminus \{3\}$

(11) $f(x)=\frac{x+7}{\sqrt{4x-12}}$

CE: $4x-12 > 0$

$4x > 12$

$x > 3$

$\Rightarrow \text{dom } f =]3; \to$

(12) $f(x)=\frac{x+7}{4x^2-12x}$

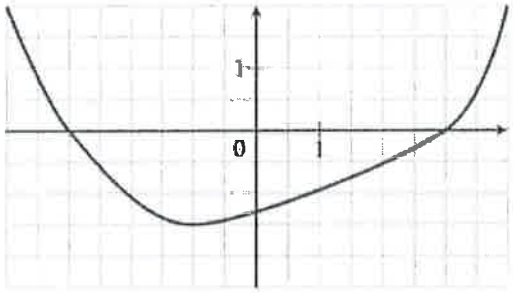
CE: $4x^2-12x \neq 0$

$4x \cdot (x-3) \neq 0$

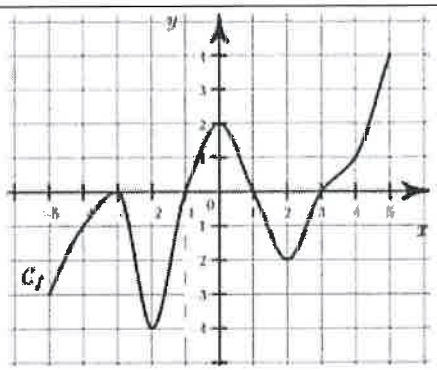
$x \neq 0$ $\quad x \neq 3$

$\Rightarrow \text{dom } f = \mathbb{R} \setminus \{0; 3\}$

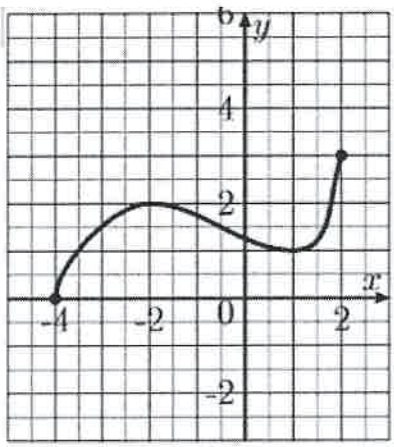
2. Détermine le domaine de définition de chaque fonction à partir de son graphique :



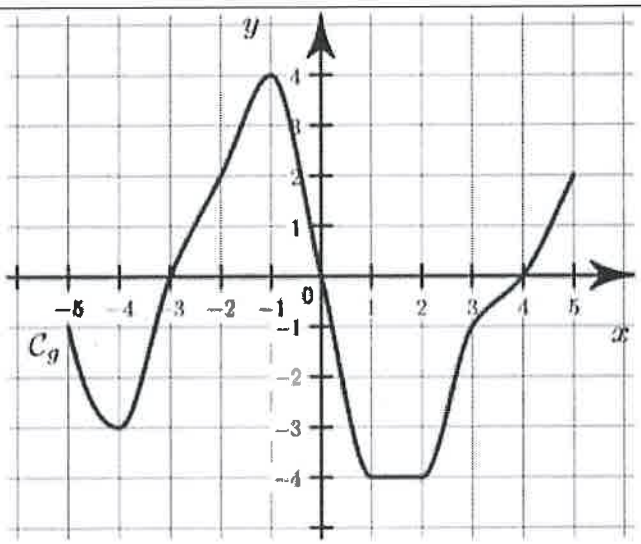
$dom\ f =$ $\mathbb{R}$



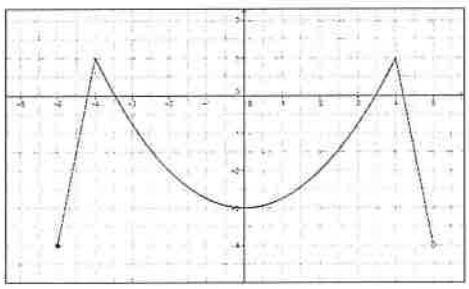
$dom\ f =$ $[-5;5]$



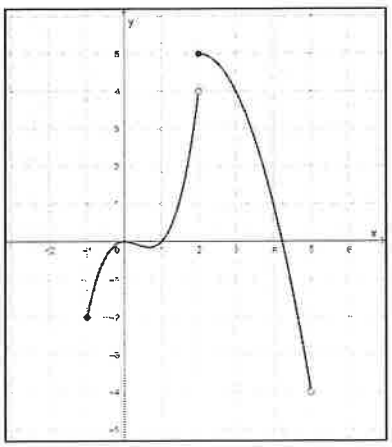
$dom\ f =$ $[-4;2]$



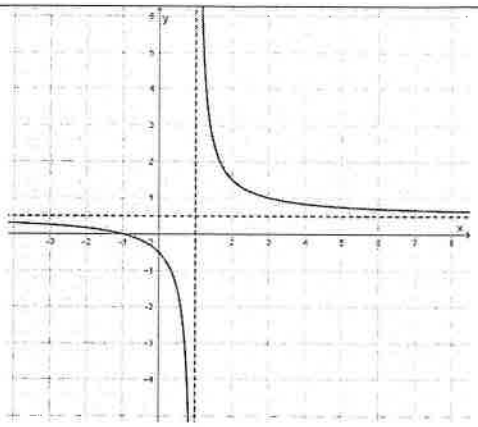
$dom\ f =$ $[-5;5]$



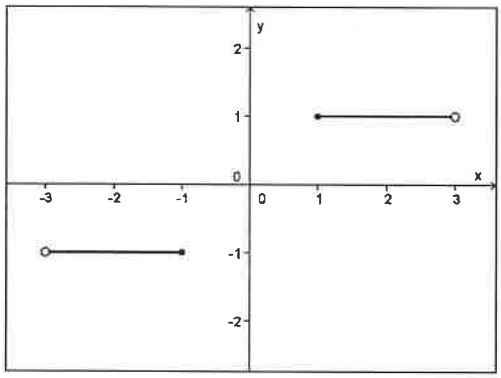
$dom\ f =$ $[-5;5[$



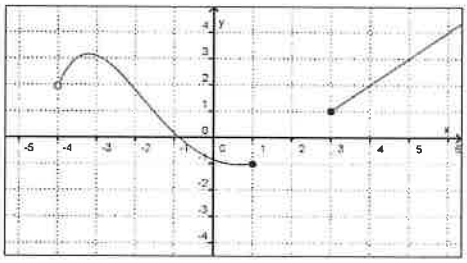
$dom\ f =$ $[-1;5[$



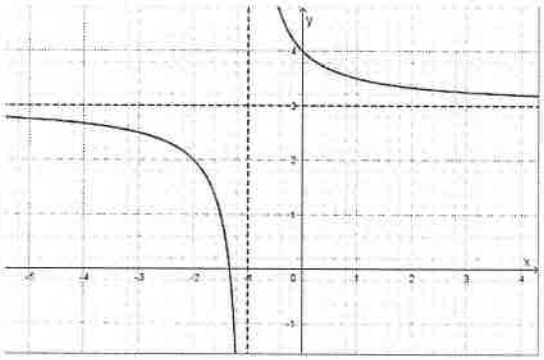
$dom\ f =$ $\mathbb{R}\setminus\{1\}$



$dom\ f =$ $]-3;-1]\cup[1;3[$



$dom\ f =$ $]-4;1]\cup[3;\rightarrow$



$dom\ f =$ $\mathbb{R}\setminus\{-1\}$