

SOLUCIONES EJERCICIOS DOMINIO Y RECORRIDO DE FUNCIONES

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|-----------------|--------------------------------------|--------------------------------------|
| a) \mathbb{R} | b) $[1, +\infty)$ | c) $(-\infty, 1]$ |
| d) $[-2, 2]$ | e) $(-\infty, -2] \cup [2, +\infty)$ | f) $(-\infty, -1) \cup (1, +\infty)$ |
| g) \mathbb{R} | h) $\mathbb{R} - \{0\}$ | i) $\mathbb{R} - \{0\}$ |

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|-----------------------------|----------------------------|---|
| a) $\mathbb{R} - \{-1, 0\}$ | b) $\mathbb{R} - \{2\}$ | c) $\mathbb{R} - \{-1/2\}$ |
| d) \mathbb{R} | e) $\mathbb{R} - \{0, 5\}$ | f) $\mathbb{R} - \{-\sqrt{2}, \sqrt{2}\}$ |

- a) $(-\infty, 3]$
 b) $[1/2, +\infty)$
 c) $(-\infty, -2]$
 d) $(-\infty, 0]$

- a) $x^2 - 9 \geq 0 \rightarrow (x + 3)(x - 3) \geq 0 \rightarrow \text{Dominio} = (-\infty, -3] \cup [3, +\infty)$
 b) $x^2 + 3x + 4 \geq 0 \rightarrow \text{Dominio} = \mathbb{R}$
 c) $12x - 2x^2 \geq 0 \rightarrow 2x(6 - x) \geq 0 \rightarrow \text{Dominio} = [0, 6]$
 d) $x^2 - 4x - 5 \geq 0 \rightarrow (x + 1)(x - 5) \geq 0 \rightarrow \text{Dominio} = (-\infty, -1] \cup [5, +\infty)$
 e) $4 - x > 0 \rightarrow 4 > x \rightarrow \text{Dominio} = (-\infty, 4)$
 f) $x^2 - 3x > 0 \rightarrow x(x - 3) > 0 \rightarrow \text{Dominio} = (-\infty, 0) \cup (3, +\infty)$

Los dominios son, por orden: $[-2, 2]$; $(-\infty, 2) \cup (2, +\infty)$ y $[-1, +\infty)$.

Los recorridos son, por orden: $[0, 2]$, $(0, +\infty)$ y $[0, +\infty)$.

a) $\frac{x+3}{x-2} \geq 0 \begin{cases} \left. \begin{array}{l} x+3 \geq 0 \\ x-2 > 0 \end{array} \right\} x > 2 \\ \left. \begin{array}{l} x+3 \leq 0 \\ x-2 < 0 \end{array} \right\} x \leq -3 \end{cases} \quad \text{Dominio} = (-\infty, -3] \cup (2, +\infty)$

b) $\frac{x-9}{x} \geq 0 \begin{cases} \left. \begin{array}{l} x-9 \geq 0 \\ x > 0 \end{array} \right\} x \geq 9 \\ \left. \begin{array}{l} x-9 \leq 0 \\ x < 0 \end{array} \right\} x < 0 \end{cases} \quad \text{Dominio} = (-\infty, 0) \cup [9, +\infty)$

Dom $f = [-4, -2] \cup [0, 6]$; Im $f = [-1, 2]$

