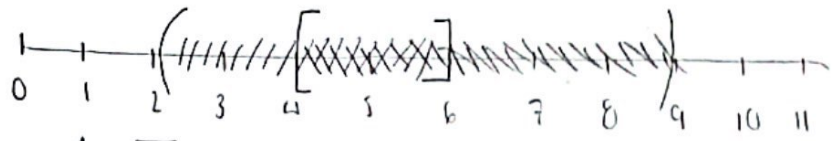
① Considere los siguientes intervalos $A=(2,6]$, $B=[4,9)$, $C=(-\infty,3)$

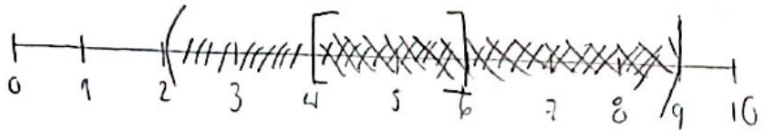
a) $A \cup B = (2,9)$



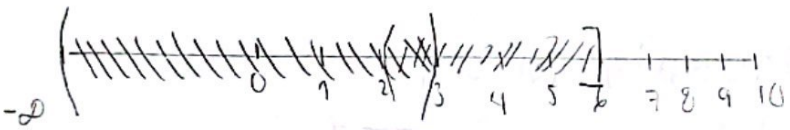
A =

B =

b) $A \cap B = [4,6]$



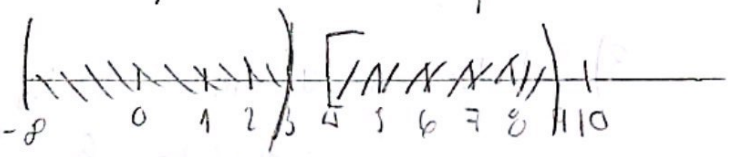
c) $A \cup C = (-\infty, 6]$



A =

C =

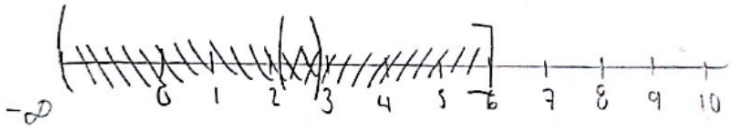
f) $B \cap C =$ Vacio



B =

C =

d) $A \cap C = (2,3)$

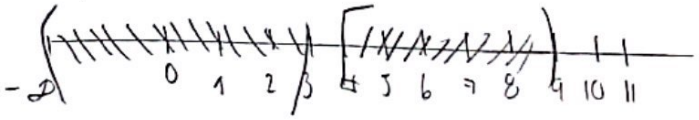


A =

C =

$A \cap C$ =

e) $B \cup C = (-\infty, 9)$



B =

C =

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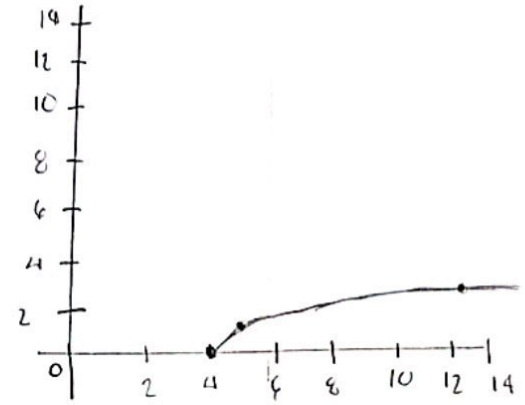
2) Utilizando tabulación encuentra la gráfica de las siguientes funciones

a) $f(x) = \sqrt{x-4}$

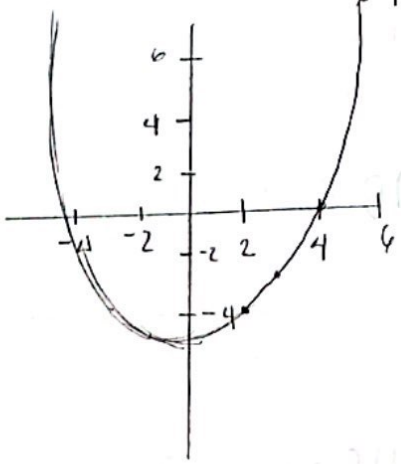
x	$\sqrt{x-4}$
4	0
5	1
13	3



b) $g(x) = x^2 - 4x$

b) $g(x) = x^2 - 4x$

x	$x^2 - 4x$
2	-4
3	-3
4	0
6	12



3) Calcular el dominio de las siguientes funciones

a) $f(x) = \dfrac{6}{x-4}$ y b) $g(x) = \sqrt{2-x}$

a: $\mathbb{R} \longrightarrow \mathbb{R}$

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

$D_F = \mathbb{R} - \{4\}$

b: $\mathbb{R} \longrightarrow \mathbb{R}$

$g(x) = \sqrt{2-x}$

$D_g = (-\infty, 2]$

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④ Calcular el dominio de la función $f(x) = \frac{3x}{x^2 - x}$ (a) (g)

$a: \mathbb{R} \to \mathbb{R}$, $a(x) = 3x$ ... $D_a = \mathbb{R}$

$b: \mathbb{R} \to \mathbb{R}$, $b(x) = x^2 - x$ $D_b = \mathbb{R}$

$D_f = D_a \cap D_b - \{x \in D_g \mid g(x) = 0\}$

$D_f = \mathbb{R} - \{x \in \mathbb{R} \mid x^2 - x = 0\}$

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

⑤ Calcular el dominio de la función $f(x) = \sqrt{x+2}^{(a)} + \sqrt{6-x}^{(b)}$

a) $a: \mathbb{R} \to \mathbb{R}$, $a(x) = \sqrt{x+2}$ $D_a = [-2, \infty)$

b) $b: \mathbb{R} \to \mathbb{R}$, $b(x) = \sqrt{6-x}$ $D_b = (-\infty, 6]$

$D_f = D_a \cap D_b$

$= [-2, \infty) \cap (-\infty, 6]$

D_a = ▨

D_b = ▨

$D_a \cap D_b$ = ▨

$\boxed{D_F = [-2, 6]}$

⑥ Calcular el dominio de la función $f(x) = \frac{\sqrt{x}}{x-2}$ (a) (g)

$a: \mathbb{R} \to \mathbb{R}$, $a(x) = \sqrt{x}$ $D_a = [0, \infty)$

$g: \mathbb{R} \to \mathbb{R}$, $g(x) = x - 2$ $D_g = \mathbb{R}$

$D_F = D_a \cap D_g - \{x \in D_g \mid g(x) = 0\}$

$D_F = [0, \infty) - \{x \in \mathbb{R} \mid x - 2 = 0\}$

$\boxed{D_F = [0, \infty) - \{2\}}$

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7) Si $f(x) = x^2 - x$, $g(x) = \sqrt{x-1}$ y $h(x) = \frac{6}{3x-4}$

encuentre las funciones

a) $g \circ f$

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

$$\boxed{(g \circ f)(x) = \sqrt{(x^2-x)-1}}$$

b) $f \circ g$

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

$$\boxed{(f \circ g)(x) = (\sqrt{x-1})^2 - \sqrt{x-1}}$$

8) Si $f(x) = x^2 - x$, $g(x) = \sqrt{x-1}$ y $h(x) = \frac{6}{3x-4}$

encuentre las funciones

a) $f \circ h$

$$(f \circ h)(x) = f(h(x)) = f\left(\frac{6}{3x-4}\right) = \left(\frac{6}{3x-4}\right)^2 - \frac{6}{3x-4}$$

$$\boxed{(f \circ h)(x) = \left(\frac{6}{3x-4}\right)^2 - \frac{6}{3x-4}}$$

b) $g \circ h$

$$(g \circ h) = g(h(x)) = g\left(\frac{6}{3x-4}\right) = \sqrt{\left(\frac{6}{3x-4}\right) - 1}$$

$$\boxed{(g \circ h)(x) = \sqrt{\left(\frac{6}{3x-4}\right) - 1}}$$