7. d) $I = (0, +\infty) \to \mathbb{R}$ $\quad Ln(x)$

e) $I = (0,2) \to \mathbb{R}$ $\quad Ln\left(\frac{x}{2-x}\right)$

f) $I = [1,2] \to [0,+\infty)$ $\quad tg\left(\frac{\pi(x-1)}{2}\right)$

g) $I = [0,1] \longrightarrow J = [0,1]$

$$\frac{e^x - 1}{(e-1)^2} = f(x)$$

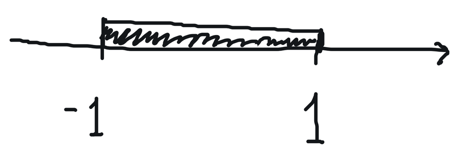
Axioma de completitud cada conjunto no vacio de numeros reales acotado superiormente tiene una cota superior minima

cota superior Dado un conjunto S, M es cota superior si $\forall x$ en S $\quad x \leq M$

supremo minima cota superior

maximo mayor elemento del conjunto

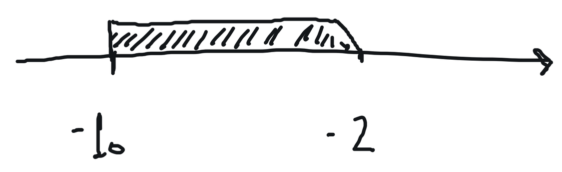
2.3.1. ⓐ $[-1,1]$



$\sup(a) = 1 = \max$

$\inf(a) = -1 = \min$

ⓓ $[-10, -2)$



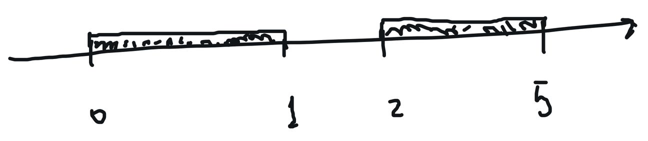
$\sup(d) = -2$

$\inf(d) = -10 = \min$

$\sup(f) = 5 = \max$

$\inf(f) = 0 = \min$

ⓕ $[2,5] \cup [0,1]$

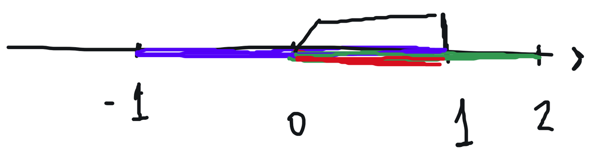


$\sup(g) = 1 = \max$

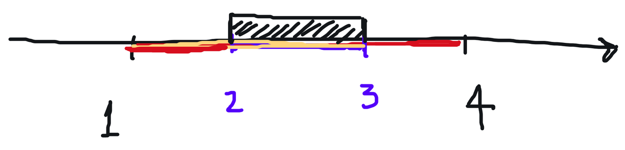
$\inf(g) = 0$

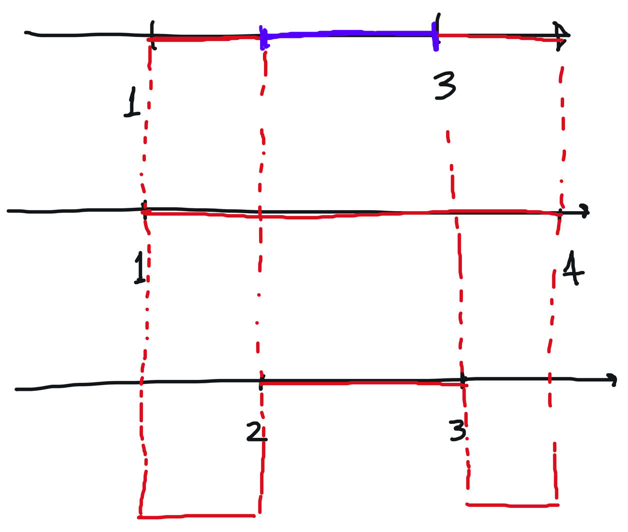
$= (0,1]$

ⓖ $\overline{[-1,1] \cap (0,2)}$



ⓛ $[1,3] \setminus ([1,4] \setminus [2,3])$

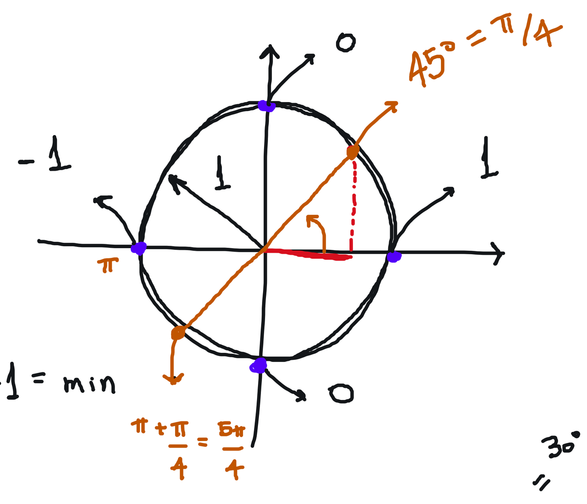




$\sup(l) = 3 = \max$

$\inf(l) = 2 = \min$

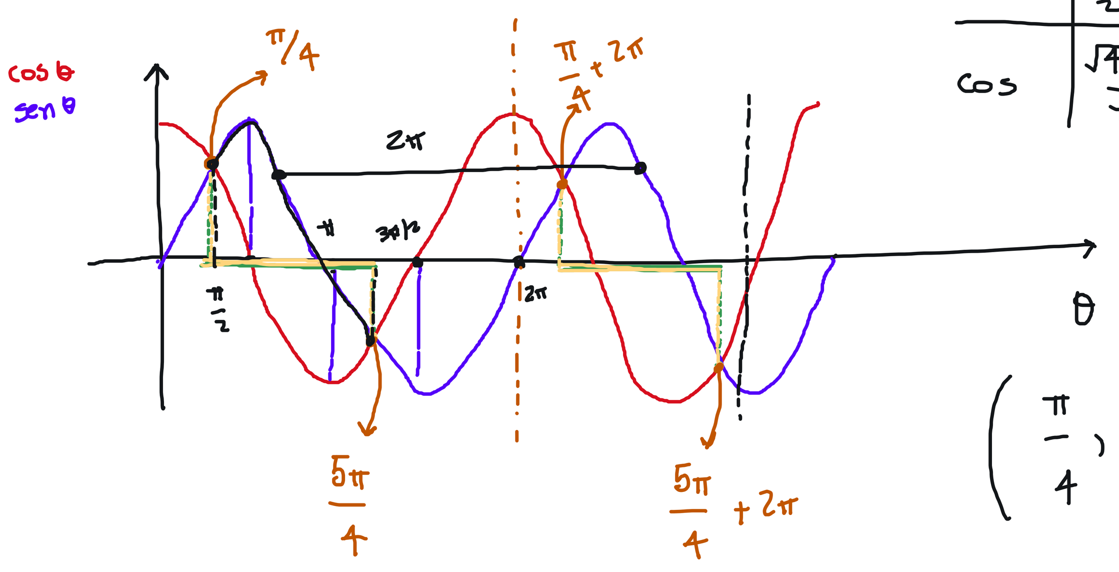
2. ⓐ $\left\{ x \in R : x = \cos\left(\frac{n\pi}{2}\right) \right\}$



$\{-1, 0, 1\}$ $\quad \sup(a) = 1 = \max$ $\quad \inf(a) = -1 = \min$

ⓒ $\{ \theta \in [0, 10] : \cos(\theta) < \operatorname{sen}(\theta) \}$

	0	$\pi/6$	$\pi/4$	$\pi/3$	$\pi/2$
		30°	45°	60°	90°
sen	$\frac{\sqrt{0}}{2}$ 0	$\frac{\sqrt{1}}{2}$ $\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{4}}{2}$ 1
cos	$\frac{\sqrt{4}}{2}$ 1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{1}}{2}$ $\frac{1}{2}$	$\frac{\sqrt{0}}{2}$ 0

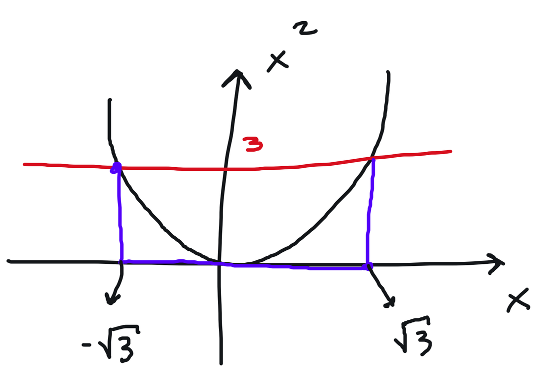


$\sup(c) = \frac{13\pi}{4}$

$\inf(c) = \pi/4$

$$\left(\frac{\pi}{4}, \frac{5\pi}{4}\right) \cup \left(\frac{9\pi}{4}, \frac{13\pi}{4}\right)$$

ⓔ $\{ x \in R : x^2 \leq 3 \}$



$[-\sqrt{3}, \sqrt{3}]$

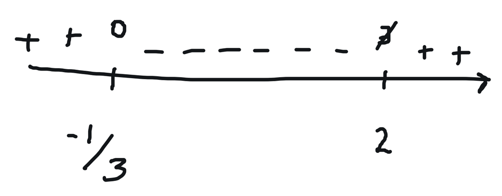
$x^2 = 3$

$x = \pm\sqrt{3}$

$\sup(e) = \sqrt{3} = \max$

$\inf(e) = -\sqrt{3} = \min$

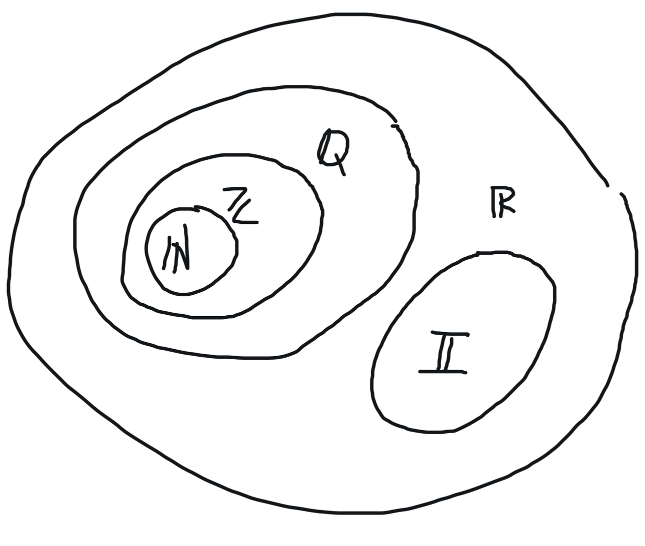
ⓖ $\left\{ x \in R : \frac{3x+1}{x-2} \leq 0 \right\}$

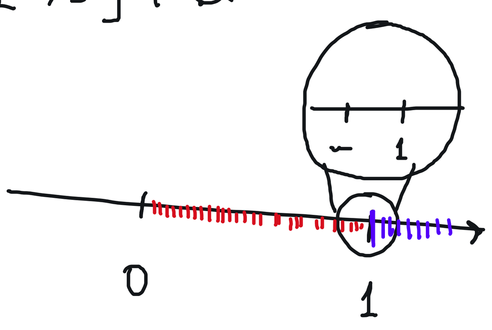


$[-1/3, 2)$ $\quad \sup(g) = 2$

$\inf(g) = -1/3 = \min$

ⓘ $[0,1] \setminus \mathbb{Q}$





$\sup(i) = 1$

$\inf(i) = 0$