ANALISI 1 - C.d.L. in FISICA A.A.2005/06

Estremo superiore e inferiore

Esercizio 1. Determinare, se esistono, l'estremo superiore, inferiore, il massimo e il minimo dei seguenti insiemi:

$$\left\{ \frac{1+n}{n} \; : \; n \in \mathbb{N} \right\}$$

$$\left\{ \frac{n-1}{n} \; : \; n \in \mathbb{N} \right\}$$

$$\left\{ (-1)^n \; : \; n \in \mathbb{N} \right\}$$

$$\left\{ (-1)^n \frac{n-1}{n} \; : \; n \in \mathbb{N} \right\}$$

$$\left\{ 3 + \frac{7}{n} \; : \; n \in \mathbb{N} \right\}$$

$$\left\{ \frac{xy}{x^2 + y^2} \; : \; x, y \in \mathbb{R} \setminus \{0\}, x < y \right\}$$

$$\left\{ \frac{xy}{x + y} \; : \; x, y \in (0, 1) \right\}$$

$$\left\{ x^2 < 2 \; : \; x \in \mathbb{Q} \right\}$$

$$\left\{ |\pi - n| \; : \; n \in \mathbb{N} \right\}$$

$$\left\{ \frac{n^\lambda + k^{1/\lambda}}{n + k} \; : \; n, k \in \mathbb{N} \cup \{0\}, (n, k) \neq (0, 0) \right\} \qquad (\lambda > 0)$$

$$\left\{ x \in \mathbb{R} \; : \; \frac{x(x^2 - 8x + 7)}{\sqrt{x^2 - 2x - 2}} \geq 0 \right\}$$

$$\left\{ x \in \mathbb{R} \; : \; \sin x < 0, x^2 - 13x + 22 \leq 0 \right\}$$