1 09-04-2018

We will learn about : Basics of functions of several variables. In this lecture:

1.1 A sequence in the Euclidean space and its application

Using these notation :

- $\mathbb{N}$: set of natural number ($\mathbb{N} = \{1, 2, 3, \dots\}$)
- $\mathbb{Z}$: set of integers ($\mathbb{Z} = \{0, \pm 1, \pm 2, \dots\}$)
- $\mathbb{Q}$: set of rational number ($\mathbb{Q} = \{0, \pm 1, \pm 2, \frac{2}{3}, \dots\}$)
- $\mathbb{R}$: set of real number
- $\mathbb{C}$: set of complex number

Definition 1. *A sequence $(x_n)_{n=1}^{\infty}$ is an assignment of (real) number $x_n \in \mathbb{R}$ to natural number $n \in \mathbb{N}$ ($x_n \in \mathbb{R}$).*
Example : $x_n = \frac{1}{n}$. $x_1 = 1, x_2 = \frac{1}{2}, \dots$

Definition 2. *A subsequence of a sequence $(x_n)_{n=1}^{\infty}$ is a sequence $(y_j)_{j=1}^{\infty}$*