MAT426: Advanced Calculus

Miraj Samarakkody

Tougaloo College

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2.38 Theorem

Theorem

If $\{I_n\}$ is a sequence of intervals in $\mathbb{R}^1$, such that $I_n \supset I_{n+1}$ $(n = 1, 2, 3, \dots)$, then $\cap_{n=1}^{\infty} I_n$ is not empty.

Proof:

2.39 Theorem

Theorem

Let k be a positive integer. If $\{I_n\}$ is a sequence of $k-$cells such that $I_n \supset I_{n+1}$ $(n = 1, 2, 3, \dots)$, then $\cap_{i=1}^{\infty} I_n$ is not empty.

Proof:

Theorem

Theorem

Every $k-$cell is compact.

Proof: