ABSTRACT

REPRESENTATION OF LINEAR OPERATOR FROM FINITE SEQUENCE SPACE ℓ_3 TOSEQUENCE SPACE $\ell_{3/2}$

by

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Themapping of vector space, especially on norm space is called operator. One of the cases about the operator, in case of linear operator, is the operator which works on sequence space. There are many cases in the linear operator from one sequence space to another which can be represented by infinite matrices. The infinite matrices are the matrices which sized infinite times infinite. for $A : \ell_3 \rightarrow \ell_{3/2}$, where $A = \begin{bmatrix} a_{11} & a_{12} & \cdots \\ a_{21} & a_{22} & \cdots \\ \vdots & \vdots & \vdots \end{bmatrix}$, $\ell_3 = \left\{ x = (x_i) \,\middle|\, (\sum_{i=1}^{\infty} |x_i|^3)^{\frac{1}{3}} < \infty \right\}$, and $\ell_{3/2} = \left\{ x = (x_i) \,\middle|\, \left(\sum_{i=1}^{\infty} |x_i|^{\frac{3}{2}}\right)^{\frac{2}{3}} < \infty \right\}$ is a sequence real numbers. Furthermore, it can be constructed an operator A from finite sequence space ℓ_3 to sequence space $\ell_{3/2}$ by using a standard basis (e_k) and it can be proven that the collection all the operators become Banach space.

Key Words : *Operator, Finite Sequence Space*

ABSTRAK

REPRESENTASI OPERATOR LINIER DARI RUANG BARISAN ℓ_3 KE RUANG BARISAN $\ell_{3/2}$

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Suatu pemetaan pada ruang vector khususnya ruang bernorma disebut operator. Salah satu kajian tentang operator, dalam hal ini operator linear, merupakan suatu operator yang bekerja pada ruang barisan. Banyak kasus pada operator linear dari ruang barisan ke ruang barisan dapat diwakili oleh suatu matriks tak hingga. Matriks tak hingga yaitu suatu matriks yang berukuran takhingga kali takhingga. Sebagai contoh, suatu matriks $A : \ell_3 \to \ell_{3/2}$, dengan $A = \begin{bmatrix} a_{11} & a_{12} & \cdots \\ a_{21} & a_{22} & \cdots \\ \vdots & \vdots & \vdots \end{bmatrix}$, $\ell_3 = \left\{ x = (x_i) \,\middle|\, \left(\sum_{i=1}^{\infty} |x_i|^3 \right)^{\frac{1}{3}} < \infty \right\}$, dan $\ell_{3/2} = \left\{ x = (x_i) \,\middle|\, \left(\sum_{i=1}^{\infty} |x_i|^{\frac{3}{2}} \right)^{\frac{2}{3}} < \infty \right\}$ merupakan barisan bilangan real. Selanjutnya dikontruksikan operator A dari ruang barisan ℓ_3 ke ruang barisan $\ell_{3/2}$ dengan basis standar $\{e_k\}$ dengan $e_k = \left(0,0, \dots, 1_{(k)}, \dots \right)$ dan ditunjukkan bahwa koleksi semua operator membentuk ruang banach.

Kata Kunci :*Operator, Ruang Barisan Terbatas*