

## ABSTRACT

### REPRESENTATION OF LINEAR OPERATOR IN FINITE SEQUENCE SPACE $\ell_7$

by

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The mapping of vector space especially on norm space is called operator. There are many cases in linear operator from sequence space into sequence space can be represented by an infinite matrices. For example, a matrices  $A : \ell_7 \rightarrow \ell_7$

where  $A = \begin{bmatrix} a_{11} & a_{12} & \dots \\ a_{21} & a_{22} & \dots \\ \vdots & \vdots & \ddots \end{bmatrix}$  and  $\ell_7 = \left\{ x = (x_i) \mid (\sum_{i=1}^{\infty} |x_i|^7)^{\frac{1}{7}} < \infty \right\}$  is a

sequence real numbers. Furthermore, it can be constructed an operator A from sequence space  $\ell_7$  to sequence space  $\ell_7$  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 PADA RUANG BARISAN $\ell_7$

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Suatu pemetaan pada ruang vektor khususnya ruang bernorma disebut operator. Banyak kasus pada operator linier dari ruang barisan ke ruang barisan dapat diwakili oleh suatu matriks tak hingga. Sebagai contoh, suatu matriks  $A : \ell_7 \rightarrow \ell_7$  dengan  $A = \begin{bmatrix} a_{11} & a_{12} & \dots \\ a_{21} & a_{22} & \dots \\ \vdots & \vdots & \vdots \end{bmatrix}$  and  $\ell_7 = \left\{ x = (x_i) \mid (\sum_{i=1}^{\infty} |x_i|^7)^{\frac{1}{7}} < \infty \right\}$  merupakan barisan bilangan real. Selanjutnya, dikonstruksikan operator A dari ruang barisan  $\ell_7$  ke ruang barisan  $\ell_7$  dengan basis standar  $(e_k)$  dan ditunjukkan bahwa koleksi semua operator membentuk ruang Banach.

**Kata Kunci :** *Operator, Ruang Barisan Terbatas*